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ORIGINAL ARTICLES.

ABDOMINAL PAIN OF INTESTINAL ORIGIN.*

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THE importance of a correct interpretation of the meaning of abdominal pain, when considered in connection with abnormal intestinal conditions, can hardly be overestimated, as in all serious disorders of this portion of the body, the advent of pain in varying character and degree is often the first warning given that the patient is suffering from a disease, which if not promptly recognized, and the condition immediately relieved by the performance of a more or less serious surgical operation, may soon terminate his life.

Failure to heed this warning or to reach a correct conclusion as to its cause has been in the past, and too often still is responsible for the untimely ending of many valuable lives; while delay caused by an effort to make an exact differential diagnosis in doubtful cases is still responsible for the high rate of mortality attending surgical operations undertaken for the relief of acute intestinal disorders. As Maurice Richardson, in a recent valuable paper, has forcibly said in regard to this subject:

"Can we by study, observation and reasoning, learn to interpret the cry for help, which through pain, the fatal lesion utters? Can we understand the cry which says, help the perforated stomach, the gangrenous appendix, the bleeding artery, the ruptured gall-bladder and the obstructed intestines?"

Abdominal pain, as has been stated, is common to all serious disorders of the intestines; its peculiarities in only one or two instances however, being sufficient, when considered alone to at once suggest to the physician's mind the general character of the disease; consequently in arriving at a reasonably correct diagnosis, in the cases we are discussing it is necessary to take into consideration, in addition to the pain, other important factors, such as the previous history of the patient and other accompanying bodily symptoms.

In a general way it may be stated that abdominal pain of a sharp and persistent character indicates involvement of the peritoneum whereas, a dull and aching pain points to involvement of the connective tissue only; while a cardialgia considered in connection with abnormal intestinal conditions, would limit the disease to the

duodenum; tenesmus indicates limitation of the disease to the lower third of the intestinal tract; whereas, colicky pains occurring several times a year in the same person, who is not habitually constipated, would, according to Hemmeter, be suggestive of entero-stenosis.

Duodenitis.—A constant abdominal pain, with increased sensitiveness to pressure in the right hypochondriac region, occurring in a patient suffering from an acute gastritis, and in whose stools there is mucus, with or without blood, is indicative of duodenitis.

Enteritis.—Colicky abdominal pains extending in various directions, accompanied by unpleasant sensation of pressure, abdominal distention, diarrhea, loss of appetite and thirst, indicates that the patient is suffering from acute inflammation of the bowels.

Colitis.—While involvement of the colon, makes itself manifest by an increase in the diarrhea, the limitations of the pains and the sensitiveness on pressure largely to the large bowel.

Sigmoiditis, Proctitis.—Colicky pains in the left iliac fossa followed by tenesmus and mucous blood-stained stools, are indicative of inflammation of the sigmoid flexure and the rectum.

Enterocolitis in Children.—While intense gripping abdominal pains occurring during the summer months in a child under four years of age accompanied by constant vomiting and frequent watery discharges from the bowel, rapid pulse, high bodily temperature, and collapse, is symptomatic of enterocolitis.

Chronic Enteritis.—Recurring abdominal pain following errors in diet, unusual physical exertion, mental excitement, accompanied by abdominal distention, gurgling sounds when pressure is made on the abdomen, and diarrhea with or without tenesmus, is indicative of chronic intestinal inflammation.

Membranous Colitis.—Abdominal pain localized in the transverse or descending colon continuing for several days and occurring in a neurasthenic woman giving a history of constipation followed by the voiding from the bowel of strings of mucus or casts of large gut, is indicative of membranous colitis.

Fecal Distention of Cecum.—Abdominal pain and tenderness of mild character located in the right iliac fossa in an aged person of sedentary habits or in a child, who also complains of digestive disturbances, and who has a doughy sausage-shaped tumor in the cecal region is indicative of fecal distention of the cecum.

Impaction of the Feces.—Abdominal pain, accompanied by mild symptoms of intestinal obstruction and a feeling of weight, and distention in the right iliac region and tenesmus occurring

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in elderly people of sedentary habits, is indicative of fecal impaction; the diagnosis being definitely settled by a local examination.

Lead Poisoning.—Severe abdominal pain, distention and tenderness associated with vomiting, constipation, followed by diarrhea, occurring in one who is also suffering from acute anemia and who has recently been exposed to the fumes of lead is indicative of acute lead poisoning. In the chronic form of the disorder, intestinal colic and a blue line on the gums, occurring in a lead worker, are the most important factors in making a diagnosis.

Primary Tuberculosis of the Intestines.—Colicky abdominal pains occurring in a child having enlarged mesenteric glands, moderate fever, irregular diarrhea and who is losing markedly in weight, are suggestive of primary tuberculous infection of the intestines.

Secondary Tuberculous Infection of the Intestines.—Recurring attacks of severe abdominal pain associated with alternating attacks of constipation and diarrhea, occurring in a patient having tuberculous involvement of the lungs and who also has a thickening of the tissues, or an elongated tumor in the right iliac fossa, are indicative of secondary tuberculous infection of the intestines. In both cases, the diagnosis being settled by the finding of the tubercle bacillus in the fecal discharges.

Tapeworms.—Abdominal pains occurring in an anemic person who is also suffering from nausea and diarrhea, but whose appetite is good, is suggestive of tapeworm; the diagnosis finally depending, however, on finding segments of the worm in the stools.

Intestinal Ulceration.—A continuous abdominal pain, associated with tenderness on pressure, always localized in the same spot, is symptomatic of intestinal ulceration. When the ulcer is located in the first portion of the duodenum, the pain is situated in the right hypochondriac region, radiates down toward the pelvis, and comes on about two hours after eating and usually occurs in an adult male, thirty to sixty years of age, who also passes blood with more or less frequency, or in a woman who has within a week or two suffered from an extensive burn. If a patient suffering from typhoid fever in the third or fourth week of the disease complains of increased abdominal pain in the hypogastric region associated with irritability of the bladder with pain extending to the penis, early perforation of an intestinal ulcer may be looked for, as these symptoms indicate extension of the inflammatory process.

Appendicitis.—A sudden abdominal pain at first referred to the epigastric and umbilical regions and later becoming localized in the right inguinal region, accompanied by abdominal distention, rigidity and tenderness on pressure, is symptomatic of appendicitis, especially so, when occurring in a young adult male, following unusual physical exertion, or in a female at or near

the menstrual period, who are also suffering from constipation, gastric disturbance, a moderate amount of fever, irritable bladder and a rapid pulse. It must, however, constantly be borne in mind that as the location of the appendix varies the pain accompanying it does also and may be located in the right lumbar, lower epigastric or umbilical region, in this last case, it may sometimes even be to the left of the median line, instead of in the right iliac fossa. The tenderness on pressure ordinarily remains, however, at this point with a dart of pain to the umbilicus as has recently been pointed out by Alexander Lambert, as the attachment of the appendix to the cecum is fixed. Constantly recurring attacks of appendicular colic are probably due, as has been stated by Talamon, to violent and irregular contractions of longitudinal muscular fibers in the effort to expel mucus.

Obliterative Appendicitis.—A constant abdominal pain over McBurney's point, with tenderness on pressure, is indicative of chronic obliterative inflammation of the appendix.

Chronic Relapsing Appendicitis.—Recurring attacks of pain in the right inguinal region at varying intervals, occurring in an anemic and emaciated individual, who complains also of digestive disorders and constipation, is suggestive of chronic relapsing appendicitis.

Typhoid fever in its earlier stages is often mistaken for appendicitis, but this error may frequently be avoided by remembering that while in appendicitis the fever is usually moderate in degree, and the pulse rate high, the reverse is the case in typhoid fever, where the body temperature is high and the pulse rate low. A blood count will also be of service. Typhoid fever in its beginning having a low leucocytosis, while appendicitis has a high one.

A diagnosis of appendicitis should never be made until a careful examination of the patient's chest has been made, as has been pointed out by Richardson, for the writer has knowledge of a case occurring in the practice of another surgeon, where the patient gave a history of recurring attacks of appendicitis, complained of pain in the right iliac and umbilical regions had gastric distention, fever, rapid respiration, and high pulse rate, but, it being hot weather, the chest was not examined. The condition was diagnosed as appendicitis and operation was decided upon. The operation proved that the patient had previously had attacks of the disease, but was not at that time suffering from the trouble and further investigation revealed the fact that the patient was really suffering from a right-sided pneumonia. Unfortunately the patient did not survive. It must not be forgotten that in some virulent cases of appendicitis we have a normal bodily temperature with a high pulse and rapid respiration rate.

External Strangulated Hernia.—Severe abdominal pain referred to the umbilical region, associated with a sudden and complete constipation, persistent nausea and faintness and collapse,

is suggestive of external hernia, and search should be at once made in the inguinal canal, umbilical and femoral regions, obturator and ischiatic foramina, perineum, rectum, vagina and the entire abdominal wall for ventral or lumbar hernia, not forgetting to examine the linea alba, for localized tumor or tenderness on pressure. The symptoms of internal strangulated hernia are of course those of distinct intestinal obstruction.

Intestinal Perforation and Obstruction.—Sharp recurring abdominal pain, increasing in severity, at first localized and then becoming general, followed by muscular rigidity and marked localized tenderness, vomiting, rapid pulse and respiration, prostration and collapse, is indicative of intestinal perforation, when associated with a history of any variety of intestinal ulceration, stab and gunshot wounds or severe contusion of the abdomen. Similar symptoms associated with constant and violent peristalsis, absolute constipation, more marked abdominal distention, occurring in a patient giving a previous history of external hernia, operation, peritonitis, tuberculous intestinal disease or tumor, is indicative of acute intestinal obstruction, or the obstruction may be due to an internal hernia, Meckels diverticulum, a long adherent appendix or Fallopian tube, or the paralysis following plugging of mesenteric vessels by a thrombus or embolism. The last condition may be suspected when a patient having a diseased heart or arteries, or pulmonary disease complains at first of severe general abdominal pain and tenderness, which is out of all proportion to the accompanying constitutional symptoms and whose constipation does not yield readily to treatment, or who passes a quantity of blood by the bowel. Unless the condition is recognized and the patient relieved promptly by the excision of the diseased gut, the general symptoms of obstruction and perforation already alluded to, soon follow.

In a case of this kind recently seen and reported by the writer the cause of the trouble proved to be due to the extension of the inflammation from a diseased appendix to the contiguous mesenteric vessels. The patient's symptoms were for the first two days of the illness those of mild recurring appendicitis, and were then followed by severe abdominal pain to the left of the median line, the pulse and temperature remaining practically normal for forty-eight hours longer, when symptoms of intestinal perforation manifested themselves and when the patient's abdomen was opened a few hours later, it was found to contain about a gallon of liquid intestinal contents and blood, a coil of the ileum about twelve inches long in a gangrenous condition, black in color with a perforation the size of a five cent piece presented itself. The appendix was found acutely inflamed, especially its tip, which was bright red in color and adherent to the mesentery of the necrosed bowel. The report

of the pathologist, Dr. Horst Oertel, was as follows:

"The portion of the small intestines shows deep hemorrhagic infiltration of all structures with edematous swelling, and simple necrosis of all tissues, it evidently progressing from the deeper portions to the mucous membrane. The vessels being very much dilated and thrombosed in one portion the size of a five-cent piece. Necrosis had so far advanced as to produce rupture of the gut. Immediately around the opening there was found necrotic tissue without inflammatory reaction."

In discussing the case just alluded to, and in referring to the character of the abdominal pain found in such cases, Dr. Alexander Lambert said that a patient of his, an intelligent physician, suffering from this condition, told him he felt as if every little capillary throbbed with pain.

It may be well to bear in mind that the patient generally rallies from the shock following perforation, and if the operation is performed within twelve hours the chances of recovery are usually reasonably good. A hypodermic injection of ergot and strychnine, with an intravenous injection of saline solution, may be used to rally the patient before the operation is undertaken with great advantage.

Hemorrhoids, Fissure or Anal Ulcers.—Severe abdominal pain during and after defecation, followed by discharges of a small amount of blood, occurring in a woman, the pain being referred to the vagina and the uterus, is symptomatic of hemorrhoids, fissure or anal ulcer. The diagnosis is completed by local investigation.

Intussusception.—A violent recurring abdominal pain, occurring suddenly in a healthy infant, accompanied by tenderness and passages of blood-stained mucus from the bowel and an elongated cylindrical abdominal tumor is indicative of intussusception.

Chronic Obstruction of the Colon.—Subacute intermittent symptoms of intestinal obstruction accompanied by tenderness on pressure, and the voiding of mucus tinged with blood by the bowel are indicative of chronic obstruction of the colon.

Volvulus of the Sigmoid Flexure.—Subacute symptoms of obstruction occurring in a male over forty years of age giving a history of constipation, the prominent feature of the disease being an extreme and rapid distention of the intestine, is symptomatic of volvulus of the sigmoid flexure.

Malignant Intestinal Disease.—Colicky abdominal pain occurring in a person advanced in life, having a history of obstinate constipation, associated with an increasing cachexia and anemia, accompanied by a hard nodular tumor which is tender on pressure, is indicative of malignant intestinal disease. The higher up in the canal the disease is located the more acute the symptoms, while, when it is located in the rectum, it is indicated by more or less tenesmus

brought on by or occurring during and following evacuations, the pain radiating down toward the loin, genitals and upper part of the thigh, accompanied by alternating evacuations of mucus, pus, blood and fecal matter.

Conclusion.—From what has already been said, it is clear that the chief value of abdominal pain as a diagnostic symptom in abnormal intestinal conditions, is not only to call the attention to the fact that the patient is suffering from an intra-abdominal disorder of greater or less severity, but also in the class of cases requiring surgical intervention for their relief, to indicate to the surgeon the locality of the trouble, hence, it becomes the duty of the physician in all cases in which severe abdominal pain is a prominent factor, to make careful notes of the patient's condition and symptoms when he first sees him, to refrain from the administration of narcotic and cathartic drugs, until a surgeon, when practicable, has also seen the patient, a diagnosis made, and a definite line of treatment decided upon.

It must constantly be kept in mind that a severe, sharp and persistent abdominal pain, almost invariably means peritoneal involvement, provided the chest has been carefully examined and its diseases excluded, and that sudden cessation of such a pain accompanied by a rise of pulse rate and increased frequency of the respiration with or without a lowering of the bodily temperature, usually denotes gangrene of the gut and its perforation. Many lives will be saved, and thousands of others made more comfortable when physicians generally come to recognize that in all cases of persistent abdominal pain of obscure origin, exploratory operations should be performed, for it has been the writer's experience that a cause always does exist when such a pain is present, and that it is usually found with ease when looked for; in other words, when in doubt operate, for, as Osler has wisely said, "The surgeon is often called too late, never too early."

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THE DIETETIC TREATMENT OF ARTERIOSCLEROSIS.*

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THE object of this paper is the brief consideration of some of the cardinal points in the dietetic management of arteriosclerosis. The importance of regulating the manner of life and the diet of the patient with this affection is well recognized, but unfortunately not sufficiently emphasized in daily practice. In the iodine compounds and the nitrites we have at hand remedial agents of great value. The judicious use of these drugs is rational and proper, yet the treatment of a case of arteriosclerosis must not rest with drug ad-

ministration, for, if it does, we are fighting against too great odds. We have failed to consider the strong probability that the constitutional effects of the quantity and quality of the food in which the patient habitually indulges will greatly modify, if they do not absolutely nullify, the physiologic action of our drugs.

Arteriosclerosis is a condition of degeneration of the arterial wall followed by fibrous hyperplasia leading to contraction and rigidity of the vessels and increase of blood pressure. It is not agreed among pathologists whether the media or intima is first affected. Thoma holds that the process starts in the media owing to the lessened resistance of this coat. The vessel in consequence becomes wider and the blood stream is slowed. By a compensatory process connective tissue develops in the subendothelial layers of the intima in the effort to restore the normal relation between the artery and the blood stream. Sansom states that the thickening of the vessel walls may begin in the internal coat, in the external coat, or that the process of fibrosis may even arise externally to the arteries altogether, but by its extension may involve these. Probably some cases of granular kidney have their origin in a proliferating change in the fibrous tissue external to the blood vessels, others in the blood vessels themselves. In lead poisoning, for instance, the initial nephritis is parenchymatous. We have strong evidence that in many cases the sclerotic changes are due to a soluble poison circulating in the blood. Let us consider for a moment the explanation of Sansom. In his first group of cases this poison acts directly upon the internal coat of the vessel; in his second group the channels are the lymphatics which are so abundant around the external coat; in his third group the distribution is through the lymphatics in the various fibrous tissues. Among the toxic causes giving rise to such a poison are syphilis, alcohol, gout, chronic lead poisoning, diabetes, chronic tuberculosis, and interstitial nephritis. There is another theory of the causation of this affection which holds that arteriosclerosis is not primarily a vascular disease but is the result of metabolic depreciation or perversion. The association of tissue degeneration, fibrosis and arteriosclerosis is almost invariable, though the exact nature of the relationship is at present unknown (Adler). It is well to recall that hereditary influences, especially syphilis and the constitutional tendency to gout and tuberculosis, play an important part in the development of arteriosclerosis in an early period of life, especially in the second and third decades. An anatomic peculiarity, congenital narrowing of the aortic system, gives rise to a tendency to the acquirement of many diseases and among these arteriosclerosis is frequently observed. J. Burke mentions that the arterial changes occur in these patients at a very early period as a consequence of the persistent high blood pressure. The clinical signs are pallor, a sense of constriction in the chest, dyspnea, cough

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and expectoration. The left ventricle undergoes hypertrophy with dilatation and consequent insufficiency. The liver is found to be enlarged and there are edema and albuminuria.

A consideration of the question of blood pressure is of extreme importance. W. Broadbent has drawn attention to the fact that in many long-lived families the pulse-tension is low and the longevity is due to the fact that there is less strain upon the heart and blood vessels. High tension is also likely to be hereditary, commonly in association with diseases the result of or accompanying faulty metabolism, examples of which are gout and nephritis. Broadbent is of the opinion that high pressure is best treated by eliminants; and P. W. Williams, in discussing Broadbent's paper, emphasizes the fact that increased tension is probably intended for the purpose of eliminating toxic substances, and that the tension should be, as far as possible, let alone and elimination be aided by eliminative drugs and proper diet. We may complete our summary of the etiology of arteriosclerosis by stating that it may be induced by over exertion, either physical or mental, by overfeeding, and that it is to a certain degree physiologic in old age. We have seen from what is stated above that persistent high blood pressure is a dangerous forerunner of arteriosclerosis; and as a necessary principle to guide us in our treatment we must be familiar with those causes which lead to high blood pressure and endeavor to reduce their effects as far as possible.

The blood vessels are resisting elastic tubes; the resistance is always equal to the pressure within, hence blood pressure and arterial tension are equivalent terms. We speak of increased or diminished pressure or correspondingly of high or low tension. Blood pressure may be increased by quick action or increased force of the heart; by increased volume of blood and by those causes interfering with the normal movement of the circulatory stream, for instance by congenital narrowing of the aorta, by increased resistance from within or without the vascular system. The volume of blood is increased after meals or excessive drinking. As a consequence increased blood pressure and high tension result. This is controlled in health by the action of the vasomotor system, dilating the vessels and also by enlargement of the veins. When the quantity of blood remains normal and the capacity of the vessels is lessened from any cause as, for instance, cutting off a vascular area by ligation or obstruction, by narrowing the caliber of the wall, as in arterial spasm, endarteritis, by disease of the kidney, contracting the lesser channels in the aortic circuit, or disease of the aorta causing obstruction to the outflow of blood—in all these conditions there results increased pressure or high tension (Musser). Nature makes the effort to reduce this tension by the action of the normal regulating vasomotor apparatus.

In our consideration of the etiology of arteriosclerosis we have dwelt at some length on the

fact that continued high blood pressure, from whatever cause, whether due to the action of a poison circulating in the blood stream, or due to increased capillary pressure, if not corrected is bound to result in sclerotic arterial changes.

When we consider that the circulatory system in any, or all, of its parts may undergo sclerotic changes we are not surprised at the great number of clinical manifestations of this condition that may arise. Symptoms may develop in any organ or part as a result of the faulty circulation. As is to be expected those organs or parts which have most work to do and which in consequence demand the most blood are most frequently the seat of morbid changes. We would mention these in the following order: (1) The heart, (2) the nervous system, (3) the kidney, (4) the gastrointestinal tract. We must recognize, however, that there are no hard and fast lines of involvement, that every case is a law unto itself; there may be localizing symptoms or simply a general breakdown.

For the sake of bringing out clearly the forces which are usually at work in these cases and for the further purpose of indicating our line of treatment, I shall mention a few of the typical classes of patients who present themselves for treatment. The proviso is made, however, that this classification is adopted merely for the purpose of convenience and that a particular case may belong to two or more of these groups, or not fit into any of them.

First, those cases occurring in young men who have been used to hard, manual labor and physical overstrain. These patients frequently complain of vague dyspeptic symptoms or, perhaps, cardiac discomfort. Very frequently they live irregularly and use alcohol to excess. Their muscular labor makes constant demands for increased blood supply and cardiac hypertrophy results. Sudden overexertions make frequent unusual demands for blood and the vasomotor system is finally unequal to adjust the blood pressure to normal; it remains constantly high. Valvular lesions, as well as dilatation of the heart, are frequently encountered.

Second, may be mentioned patients of plethoric habit—the obese, well-fed men of business or professional life. This class works with its head rather than its hands. As a rule these patients eat too much and exercise too little. There is complaint of gastric disturbance, often chronic constipation and, very usually, mental torpidity. The patient tells us that he finds himself unequal to his work, that he is forgetful, irritable, and less sure in his judgment than he has been.

Our third class is comprised of the ill-nourished, highly nervous individuals past the fourth decade in years. These patients have plainly visible and tortuous arteries. They are neurasthenic, introspective and hypochondriacal.

The fourth class might be included as a later stage of the second. Men of affairs not of nervous habit, suddenly seem completely changed in disposition. They often complain of insomnia,

palpitation, mental lapses, inability to center attention, and at times spells of syncope.

It is not within the scope of this paper to discuss the diagnosis of arteriosclerosis, yet it is but truth to mention the fact that it is not uncommon to see these cases wrongly diagnosed and, in consequence, wrongly treated. It stands to reason that the indication is to lower the blood pressure and spare the heart, yet stimulation and even the use of digitalis may be laid at the door of many a worthy practitioner in the very cases when the main indications are diametrically opposite.

In the management of arteriosclerosis we must consider the long course of the affection and the fact that the damage which has been done cannot be repaired. The physician's aim must be to arrest the process and thereby make it less likely that serious complications follow. The patient with arteriosclerosis, whatever his years, is to be regarded as an old man whose work in life must be of the lightest character and whose road must be made as smooth as possible. The laborer with this condition must find lighter work and, indeed, muscular work, in general, should be kept at the point of merely maintaining the cardiac hypertrophy and muscular nutrition. I am well aware that these indications are difficult of attainment, but nevertheless they are clearly outlined, and when once recognized very often much may be done. It may not be impossible for many sufferers to change their vocations to those whose duties are less arduous. When once our diagnosis is fully confirmed our advice should be emphatic. The picture of the final complications of arteriosclerosis—apoplexy, aneurism, angina pectoris, uremia—is rather less pleasant to contemplate than even the most radical change in a man's vocation and manner of life. What we have said refers especially to the class which do manual work; to those whose mental burdens are great, as in the responsibilities of a great business, we must be equally insistent. Frequent vacations in which the patient gets back to nature as closely as possible are not always unattainable, and it is often feasible to lighten the burden of one's mental responsibilities when the need is imminent.

The question of diet in general is one of far greater importance than I can hope to set forth to-night, but there is no condition in which it might be made the text of an excellent sermon with greater profit than in the discussion of arteriosclerosis. There is the same danger of overfeeding an adult that there is in underfeeding an infant. Unlike other animals, man has an extremely varied dietary. His gastro-intestinal tract is called upon to perform heroic work in the digestion of improper food as well as too much food. Most of the carnivora feed but once in twenty-four hours; in man, the stomach at best gets but a short rest. We have departed so much from primitive life in the development of our civilization and especially in the curtailment of exercise that elimination is accomplished with greater or less difficulty.

It is necessarily impossible in view of the manifold conditions by which we are confronted, to lay down hard and fast rules for the dietetic treatment of arteriosclerosis. The general indications, however, are clear enough and these must be so altered as to meet the needs of any given case.

Chemical action is the basis of all vital activity. In the performance of bodily functions energy is yielded in the form of work and heat. To supply this energy new material must constantly be furnished and transformed into assimilable material which is utilized by the economy. Certain waste products which remain are to be carried off. The new material is brought to the body in the form of food which must fulfil the conditions of being received into the body, transformed, stored up as potential energy, and capable of yielding on demand muscular work and heat (kinetic energy). Foodstuffs are made up of alimentary principles or nutrients and certain waste products. However great the varieties of foods, all contain but few proximate principles. A convenient classification divides these principles into organic and inorganic. Of the organic principles, some are nitrogenous, *i.e.*, the proteids and albuminoids. While others are as non-nitrogenous, *i.e.*, the carbohydrates and fats. The inorganic alimentary principles are water and mineral matters.

The important elements in foodstuffs are nitrogen and carbon. The essential waste products are urea and carbon dioxide. The materials which we eat and drink differ widely in composition from the tissues which they are intended to form or repair. This material is generally in an insoluble form and it is by the processes of digestion that food is so changed that it may be absorbed by the blood and taken up by the tissues of the body.

Water and the inorganic salts are not regarded as foods in the usual acceptation of the term. Since these substances are constantly, however, being lost in the excreta it is necessary that a fresh supply should be furnished to the body. Unlike the other foods water and the inorganic salts are capable of passing through an animal membrane by direct diffusion. They need no digestive action. A glance at the various chemical analyses of food will show that water in large quantities is contained in all and that salts are also present.

The proteids furnish the material from which the repair of old proteid tissue, as well as the development of new proteid tissue, is derived. It is known that the most important constituent of living matter is the proteid part of its molecule, and for this reason proteid foods are an absolute necessity. Proteids contain nitrogen, while carbohydrates and fats do not contain this element. Therefore, proteid material alone must be supplied in order that new protoplasm be formed. In order to maintain the proper equilibrium of the body a mixture of the alimentary principles should be used; but without proteid

material, the inorganic salts and water, starvation would result.

The albuminoids resemble the proteids closely in their composition; gelatin is an example. They contain nitrogen and are of complex structure, but they cannot take the place of proteids in building up protoplasm. They act, rather, in the manner of the non-nitrogenous foods.

The carbohydrates contain no nitrogen. In this group we include the starches, sugars, etc. In their destruction in the body a certain amount of energy is liberated. The energy of muscular work and of the heat of the body comes largely from the destruction or oxidation of carbohydrates.

Fats, including the animal and vegetable oils, contain no nitrogen and their use in the body is practically the same as that of the carbohydrates. As sources of energy weight for weight fats are more valuable than the carbohydrates, but they are digested with greater difficulty.

Meats have a relatively large amount of proteid, or of proteid and fat, and a small percentage of carbohydrates. The vegetable foods are distinguished, as a rule, by the large percentage of carbohydrates and, with exceptions, by small amounts of proteids.

It is of great importance to know the nutritive value of the articles which make up our ordinary diet, but it is equally important to remember that these articles are not digested at the same rate or with equal completeness. It has been demonstrated that the proteids of animal foods are more completely digested than those of vegetables and for that reason the chemical analyses express more directly their food value. The relative value of various foodstuffs may be considered from the four points of view suggested by Hutchison: (1) Chemical. What percentage of each nutritive constituent does the food contain? (2) Physical. How much potential energy is it capable of yielding? (3) Physiological. How does it behave in the stomach and intestine? Is it easily digested, and to what extent is it absorbed? (4) Economic. Are the nutritive constituents which the food contains obtained at a reasonable cost?

1. Chemical analysis gives us the percentages of proteid material, carbohydrates, fats, etc., in a given part of the food considered and enables us to estimate the value of the food as a tissue former and work and heat producer. Satisfactory tables are to be found in all works on physiology and dietetics, and they should be consulted in framing a suitable dietary.

2. The changes which food undergoes in the body are essentially changes of oxidation and the amount of heat which a food is capable of yielding on complete combustion is taken as a measure of its value as a source of energy. The calorie is the standard of heat production and it is that amount required to raise the temperature of one gram of water one degree C. The kilo-calorie or the amount of heat required to raise one kilo of water one degree C. is usually employed for

convenience in the measurement of the heat values of food. It is written Calorie with a capital letter in distinction to the ordinary calorie which is written with a small letter. The heat value of one gram of the three chief nutritive constituents when taken into the body tissues is as follows: Proteids, 4.1 Calories; carbohydrates, 4.1 Calories; fat, 9.3 Calories.

The method of applying the Calorie standard to a food is very simple. One has merely to multiply the percentage of proteid or carbohydrate which it contains by 4.1 and the percentage of fat by 9.2 to get the total Calories yielded by 100 parts of the food in question. Suppose, for example, that a specimen of milk contains in every 100 grams 2 per cent. of proteid, 4 per cent. of fat, and 6 per cent. of carbohydrate, then the Calories yielded by that quantity of milk would be as follows: Proteid, $2 \times 4.1 = 8.2$; fat, $4 \times 9.3 = 37.2$; carbohydrate, $6 \times 4.1 = 24.6$. Total Calorie value of 100 grams of milk 70.0 (Hutchison).

A man at full work must receive as a daily income about five per cent. of his body-weight (Waller).

Solid food	1 per cent.
Oxygen	1 per cent.
Water	3 per cent.

For example, a man who weighs 70 kilograms (about 160 pounds) must receive

Solid food =	500 grams
Oxygen =	700 grams
Water =	2,100 grams
Total =	3,500 grams

The 700 grams of solid food should contain about

140 grms. proteid
105 grms. fat
420 grms. carbohydrate
35 grms. salt.

For each kg. of body-weight the diet should contain two grams proteid, 1.5 fat, 6 grams carbohydrate, 0.5 grams of salt. A total of ten grams, or 1 per cent. of solid food. This amount of solid food should yield between 3,000 and 3,500 Calories. If we apply the simple rule given above in the estimation of the Caloric value of 100 grams of milk, we have

Proteid	140 grams $\times 4.1 =$	574
Fat	105 grams $\times 9.3 =$	976.5
Carbohydrates	420 grams $\times 4.1 =$	1,722
Total in Calories...		3,272.5

The amount of proteid in this diet is perhaps unnecessarily high. One hundred or one hundred and twenty grams would probably be sufficient. This abundant amount will be influenced by the age of the patient, his general health and the work in which he engages. A man at rest should receive one-half, or three-fifths of this amount. These points have been mentioned somewhat in detail for the purpose of enabling us to make a practical application of these facts.

It will be seen from the above that a man

weighing 160 pounds requires 1.6 pounds of solid food per day. If the patient is obese and is accustomed to overfeeding he takes much more food than even this most liberal standard allows. In all probability he exercises but little, has fatty, flabby abdominal walls and complains of digestive disturbances and chronic constipation. When we remember that the splanchnic nerves regulate blood pressure and that stimulation of these nerves increases blood pressure especially within the abdominal cavity, one of the contributing causes of arteriosclerosis in cases of this type becomes clear. Another factor also to be considered is that the constipation usually present leads to auto-intoxication which furnishes an additional means of increasing arterial tension by means of soluble toxins. It is evident that the amount of food must be reduced in these patients and that they should be forced to take moderate exercise and be relieved, as far as possible, of mental responsibility. There is danger in any reduction system, however, on account of the age of the patient and the tendency to fatty degeneration of the heart. Our object must be to produce a very gradual loss of weight and an increased muscular tone.

Other patients with arteriosclerosis may not be heavy feeders but the quality of the food they take will in all likelihood be found too rich in nitrogenous elements, and extractive matters. These are known to be eliminated with difficulty and to increase the blood pressure. In all cases of arteriosclerosis the proteids must be taken in moderation and meats, therefore, should be cut down but not totally excluded.

Foods rich in lime salts are contraindicated theoretically but it is doubtful whether the amount of calcium ingested can increase the amount assimilated for most of it is found to pass through the intestinal tract and may be recovered in the feces. Rumpf, of Hamburg, recommends, however, a diet poor in calcium salts; such as bread, fish, meat, apples and potatoes. He does not allow milk, eggs, cheese, rice, or spinach. Others permit milk and eggs and advise a restricted dietary composed largely of vegetables, cereals, milk and fruits.

In cases of arteriosclerosis it is always imperative to reduce the quantity of fluids taken whether alcoholic or non-alcoholic. The sudden entrance of a large quantity of fluid into the stomach produces an overdistention of the blood vessels, increases the work of the heart on account of the increased quantity of the blood; the blood tension is further also raised by the irritation of the splanchnic nerves. Tea, coffee and cocoa should be prohibited or taken in small quantities. These contain alkaloids which practically have an identical action on the nervous system; this action is one of stimulation resulting in a temporary increase of blood pressure. In addition they form uric acid, retard digestion, somewhat, and increase the work of the stomach. Milk when taken as a food should be drunk slowly and in small quantities,

preferably at the time other food is taken. It is well to remember that while milk is a liquid food in the ordinary sense of the term, it is practically a solid food as soon as it reaches the stomach on account of the coagulation of the casein. The curd of the casein is much more readily broken up when the milk is taken with other food. Alcohol is to be prohibited absolutely, unless it is indicated on account of the failing heart. Alcohol is one of the soluble poisons which is recognized as a potent influence in causing arteriosclerosis. Now, there are cases in which the absolute prohibition of alcohol may be of no avail. The alcohol habit may have extended over many years and is not to be broken; in such cases the patient should be urged to take small quantities of whisky or brandy or a good dry wine with his meals and to stop the use of malt liquors entirely. The excessive use of tobacco is supposed by some to predispose, if it does not actually cause, sclerosis of the coronary arteries. This statement, however, rests upon doubtful grounds. It is wise in these cases to urge the moderate use of tobacco, recalling its tendency to produce irritable heart and digestive disturbances.

The association of arteriosclerosis with interstitial nephritis and gout, either as a cause or a consequence, has been mentioned and it is interesting to note that the most approved methods of treating these two conditions depend in large part upon the hope of eliminating the dietetic causes of high arterial pressure. Von Noorden especially questions the utility of a milk diet in interstitial nephritis and advises the curtailment of liquids and the taking of small meals. The amount of proteid food must not be too greatly reduced on account of the necessity of maintaining a due degree of cardiac hypertrophy. In the last few years the idea that white meats, such as chicken, fish and veal, are preferable to the dark meats on account of their containing less nitrogenous extractive matter has been denied, and it has been found that the varieties of meat have no constant influence upon the composition of the urine or the amount of albumin which it contains. Indeed the amount of albumin is an index of the severity of the affection in the acute forms of nephritis alone. We know, however, that white meats contain less proteid than the dark and in our effort to reduce the nitrogenous food advantage may be taken of this fact.

In the treatment of gout we must control the amounts of food which yield uric acid, and it is known that foods rich in nuclein perform this part. We must avoid, then, liver, kidney, sweetbreads, and restrict the use of the ordinary meats. Tea, coffee, cocoa and meat extracts are also direct sources of uric acid. Hutchison, discussing the diet in gout, says: "On the whole, the belief seems to be gaining ground that the quantity must be attended to quite as much as quality, and that the best diet for the gouty is a spare one, containing only a moderate amount of carbohydrate and fat, and in which not too much

of the proteid is derived from animal sources. In the light of the above facts, it might be well to add that, so far as is compatible with healthy nutrition, the animal ingredients should consist mainly of milk and eggs." The free use of water is ordinarily recommended for gouty people as an admirable aid in the elimination of nitrogenous waste. Yet, unless the water happens to possess aperient or highly alkaline qualities, it is doubtful whether drinking largely does more than to dilute the urine without increasing the total output of urinary solids.

As an epitome of the necessary dietic restrictions for patients suffering from arteriosclerosis the following may be said: (1) The quantity of food should be greatly reduced, not more than one-half or two-thirds the general average for body-weight being required. This amount in detail should be estimated according to the general rules laid down. (2) The quality of the food is important. Proteid foods are to be reduced, but not excluded. Meat should not be taken more than once daily and then in small quantity. It should be our effort to see that the patient obtains well cooked food especially avoiding large amounts of fat or other substances difficult of digestion. Alcohol, tea, coffee, and cocoa, as well as tobacco, are to be forbidden or used with extreme moderation. Excessive water drinking, or drinking large quantities of any fluid must be curtailed. (3) The regulation of meals is important. Breakfast should consist of fruit, a cereal with cream and perhaps an egg, poached or soft-boiled. There should be an interval of five or six hours between breakfast and dinner, and the heaviest meal should be taken in the middle of the day. It is not advisable to place too many restrictions upon what the patient shall have for his dinner. It may consist of soup, fish, meat, and vegetables, but overfeeding is to be strenuously avoided. Between dinner and supper five or six hours should also elapse, and this meal must be light and consist, as breakfast, mainly of fruit and cereals.

In general, a comparatively dry diet is indicated and the patient should eat nothing between meals. Elimination must be kept at its maximum of efficiency and our hygienic regulations laid down in great detail and strictly enforced.

ENLARGEMENT OF THE PHALANGES IN RICKETS: A REPORT OF TWO CASES.*

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THE osseous changes and deformities associated with rickets, more especially those of the head, chest, wrist and ankle, are so generally known and so frequently observed as to render any extended mention unnecessary. A reference to many of the standard English, German and

French text-books on pediatrics will show an adequate description of these pathological conditions.

It is quite different, however, with the description or even mention of the changes and deformities in the bones of the hands and feet. To judge from the accounts of rickets in these works, it would seem that physicians controlling a large material among the poorest elements of the population, seldom observe these deformities or, if so, fail to mention them in their discourses on the subject. Thus Henoch,¹ Jules Comby,² Baginsky,³ Ashby and Wright,⁴ Seitz,⁵ Cheadle,⁶ Rehn,⁷ Senator⁸ and others do not refer to them. Jacobi⁹ makes the general statement that "the extremities suffer in different ways in all their parts—the epiphyses and diaphyses, the periosteum, and the epiphyseal cartilages." Monti¹⁰ states that "only in severe cases do changes occur in the phalanges of the fingers and toes, and again¹¹ that "in marked instances of rachitis the phalanges show similar changes to those of the forearm." O. Vierordt¹² says "that apart from an abnormal mobility of the joints of the hand there are no characteristic changes in these parts." Fischl¹³ is credited with the statement that "a constant change which I consider typical is rachitis of the phalanges of the fingers; which, in marked cases, appear olive-shaped." Holt¹⁴ writes that "enlargement of the ends of the metacarpal bones or the phalanges I have seen in but two or three extreme instances." Koplik¹⁵ states very explicitly that "the phalanges are sometimes the seat of the rachitic processes. In one severe case I found all the phalanges thickened in the diaphyses. This case bore a very close resemblance to dactylitis syphilitica, especially as there was pain on pressure." An excellent illustration accompanies this statement.

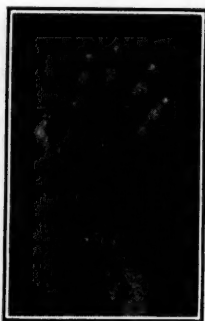
Such being the facts, I desire to record the history of two cases observed in my dispensary practice and to present photographs demonstrating the condition in question.

Case I.—David K., aged three years, born in Roumania. Father and mother alive and healthy; no history of abortions. Child was brought to the dispensary because of "general weakness" and inability to walk. Mother stated that delivery occurred at full term and was perfectly normal; the child was breast-fed until the end of the first year, the first tooth, an upper central incisor appearing at four months. At the ninth month the mother noticed an enlargement of the ankles and abdomen, and difficulty in breathing; at one year this enlargement had increased. Being extremely poor, no doctor was consulted; in fact, the visit to the dispensary was said to be the first to any physician. After the first year the diet was a mixed one; the deformities, however, increased until at the time of his visit examination showed the following: Head large and square, fontanelles and sutures closed. (Mother said that at two years the anterior fontanelle was as large as that of a "baby"). All teeth present. Chest narrow, rosary felt both anteri-

* Read at a meeting of the Eastern Medical Society, May 8, 1903.

orly and posteriorly; marked lateral thoracic depression, kypho-scoliosis to the left. Excessive enlargement of the wrist epiphyses, curvature of the forearms. Skin pale and soft, tongue not enlarged, abdomen protuberant and tympanitic. Liver palpable, spleen enlarged. Thickened ankles, moderate degree of bow-legs. Heart normal; lungs, few coarse râles; temperature 99.2° F. per rectum. Blood shows a moderate degree of leucocytosis and chloranemia. No enlargement of the metacarpal or metatarsal bones. Both hands presented the following picture (Fig. 1. Right hand): The first, second and third phalanges of all the fingers of both hands, and both phalanges of the thumbs were thickened. There was no pain or tenderness on pressure, no edema of the skin or enlargement of the joints. The phalanges of all the toes showed a palpable thickening, though to a far less degree than those of the fingers. This thickening affected the shaft and more particularly the middle, rather than the epiphyseal ends. In

Fig. 1.



Case I.—Rickets. Diaphyseal thickening of the phalanges. Enlargement of the wrist epiphysis.

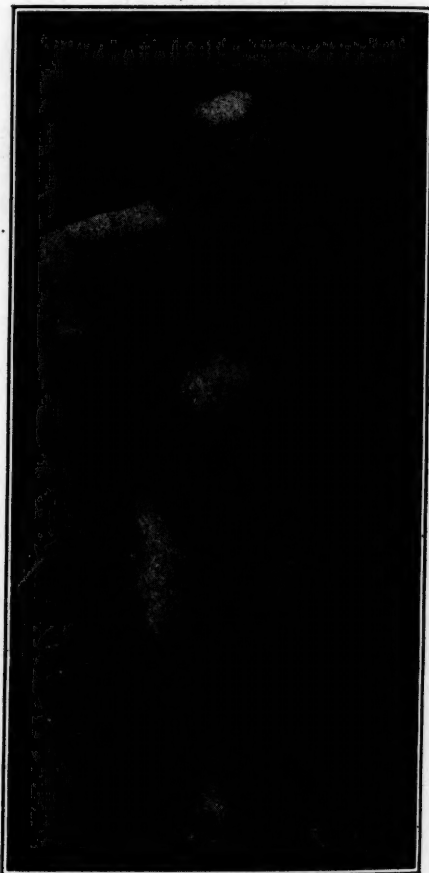
other words the enlargement was distinctly in the diaphysis. The enlargement of the three middle fingers was more marked than that of the thumb or little finger.

After observing this patient the mother was questioned in regard to other children with the result that on the following day the second child was seen.

Case II.—Rosy K. (Fig. 2), aged four years, sister of previous patient. Breast-fed for one year; first tooth at six months. When the child was two years old mother noticed a marked deformity at the ankle and took her to a physician who said that she had the "Englische Krankheit," and advised the necessary hygienic, dietetic and medicinal regime. This child did not begin to walk until she was three years old. Examination showed a large head with closed sutures and fontanelles, narrow chest, rosary, lateral thoracic groove, kypho-scoliosis more marked than in her brother, thickened clavicles, spleen and liver palpable, pot-belly, heart and lungs normal. Distinct epiphyseal enlargement at the wrist and

ankle; curvature of the leg and arms more marked than in her brother. The thickening of the phalanges of the fingers and toes (Fig. 2 and 3) was less marked than in previous case though still distinct. Here the enlargement was most evident in the first and second phalanges of the middle and ring fingers of the right hand and the index and middle fingers of the left. In this, as in the former patient, the phalangeal thickening of the toes was more evident to the touch than to the sight.

Fig. 2.



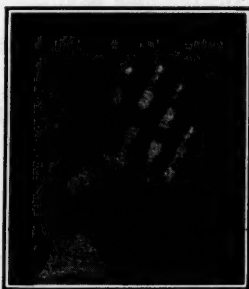
Case II.—Rickets. Showing characteristic deformities and curvatures of forearms and legs.

The enlargement of the phalanges in these two cases is due in all probability to a superiosteal cell proliferation with imperfect and delayed ossification. Unfortunately I was unable to procure skiagraphs of these deformities.

There can hardly be any question as to the rachitic nature of these enlargements, first because of the simultaneous existence of other symptoms and lesions of rickets, and secondly because of the absence of any syphilitic or tubercular history or stigmata. Against syphilitic dactylitis speak the

absence of history, the symmetrical involvement of all the larger joints as well as the fingers and toes, the lack of destructive inflammation after so long a time without treatment, the presence of cardinal signs and symptoms of rachitis and the absence of all syphilitic stigmata—eruption, scars, snuffles, keratitis. Syphilis, as a rule, involves one

Fig. 3.



Case II.—Rickets. Showing right hand with enlargement mainly in the first and second phalanges of the middle and ring fingers.

or several fingers and is usually not symmetrical; Taylor¹⁵ remarks, however, "In one instance I have seen every phalanx of each hand swollen."

I am indebted to Dr. Martin W. Ware for the privilege of seeing a dactylitis syphilitica involving all the fingers of both hands.

Syphilitic bone lesions in many children appear as a rule very early in life and generally attack the junction of the epiphysis and diaphysis. When the periosteum becomes involved it presents irregular elevations or a boggy infiltration, rather than a uniform thickening as in these cases.

Fig. 4.



Case II.—Right and left hand. Left hand shows phalangeal enlargement mainly in the first and second phalanges of the index and middle fingers.

Against tuberculous dactylitis we have the absence of tuberculous history, the negative condition of the lungs, the lack of pain, tenderness, necrosis, suppuration or limitation of motion, and the existence of a symmetrical involvement.

Only one other condition might be mentioned in differentiation—clubbed extremities. In this

condition the fingers and toes alone are involved, the head, chest and epiphyseal bone changes being absent; the terminal phalanges are most frequently affected and there are evidences of pronounced or prolonged pulmonic or cardiac disease.

It is true that in the two cases reported the rachitic manifestations were very marked. However, since my attention has been directed to the phalanges, I have observed several cases of rickets of not unusual severity in which some phalangeal thickening existed. *It is my opinion that this condition is very frequently overlooked owing to lack of attention to the hands and feet.*

I might say that both patients were given anti-specific and thyroid medication for a long time without any visible effect upon either the general manifestations or the phalangeal thickenings. These cases are interesting, not only on account of the unusual situation and extent of the deformities and of the importance of a proper diagnosis, but also because they show that rickets occurs in breast-fed babies when mother's milk lacks the proper quality and quantity of ingredients necessary for the growth and development of the child. This is a fact too often overlooked and occurs in my experience more frequently than is generally supposed.

I would venture to suggest that these deformities be designated as rachitic dactylitis, partly for the want of a better term to express the condition, and partly because even at this late day authorities disagree as to whether the "nervous (Tedeschi), alimentary (Trousseau, Guerin, Glisson), modified alimentary (Jacobi, Baginsky, Comby), season (Kassowitz, Schmidt, Alexander), infectious (Chaumier), or thymus gland theory (Friedelben, Mendel)" explains the symptoms and lesions of the disease. Since most are agreed that the bone changes are accompanied by hyperemia, dactylitis may not be so exaggerated a term.

Shortly after reading the foregoing before the Eastern Medical Society, I was very much pleased and interested to note a similar contribution by Dr. Rudolph Neurath in the *Wiener klinische Wochenschrift*, of June 4, 1903. This author states that his experience in a large series of rachitic patients has shown that a positive diagnosis of this affection can be made *par distance* from a peculiar deformity of the phalanges of the fingers which gives the bones a spindle shape. He very properly remarks that the middle part of the bone is thickened and that the region of the articulation is normal and appears as if sunken between the enlarged phalanges.

Radiography has demonstrated that the enlargement is periosteal. This phalangeal hypertrophy was observed by him only in severe cases presenting enlarged epiphyses and rosary. Only in rare instances did he observe any enlargement of the toes; when present it was very slight. He comments upon the lack of medical literature in reference to this part of the subject and quotes no less an authority than, Kassowitz, as saying

that "alterations of the metacarpal bones and phalanges are rare and absent as a rule even in severe cases."

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TREATMENT OF PNEUMONIA.

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THE recognition of the fact that pneumonia is not a local disease of the lungs but an acute infectious fever with its most pronounced anatomical lesions in the lung, gives a basis for the rational treatment of the disease.

In all infectious diseases we recognize a local lesion—usually situated at the point of entrance of the infecting organism—and a toxemia of more or less pronounced intensity varying greatly in different cases.

The toxic condition of the blood impairs the nutrition and interferes with the normal functioning power of the several tissues of the body. Next to the lung, the organs most seriously attacked in pneumonia are the heart and the kidneys. In all cases of pneumonia the pleura is involved in some degree, sometimes bearing the brunt of the attack, even developing a purulent exudate. The lesion in the lung is primarily a congestion rapidly passing to the stage of fibrinous exudate into the air space and round cell infiltration in to the pulmonary tissue, ending in resolution or desintegration.

A brief review of the clinical course of a favorable case shows us the initial chill; the high temperature; the increased frequency, full volume, high tension and normal rhythm of the pulse; the coated tongue; the anorexia; the sluggish liver and inactive bowel; a kidney not functioning properly; the diminished excretion of chlorides; the presence of albumin, and usually casts in the urine; the more or less pronounced nervous symptoms; the cough, the rusty sputum, the dry, hot skin; the flushed face of slightly dusky hue, and the leucocytosis. For a week or ten days these symptoms persist, the most important change occurring in the increasing frequency of respiration and loss of the tension and sometimes change in rhythm of the pulse.

At the end of this period there occurs a pro-

fuse sweat, the temperature falls, the respiration becomes less frequent, the pulse improves in rhythm, the patient falls into a quiet sleep and awakens refreshed and well. Sometimes a watery diarrhea accompanies or takes the place of the sweat. If the case does not go on to recovery or dies before the time of the crisis, death occurs either from the intensity of the toxemia or from interference with oxygenation from involvement of too great extent of lung or from some complication.

The chief cause of death in pneumonia, exclusive of complications, is failure of the circulation through degeneration of the myocardium. Several factors enter into the causation of this myocardial degeneration, namely, the toxemia of the infection acting directly upon the muscle fibers; the same cause active in the general system and producing an increase in the arterial tension throughout the body, thus making harder work for the myocardium of the left heart already suffering from toxemia; the morbid changes in the lung causing obstruction to onflow of the blood from the right heart, thus throwing harder work upon the right myocardium also suffering from the toxemia. The amount of pulmonary involvement would be, of course, a decided factor from this point of view, as well as from that of interference with oxidation, too great an interference with this function producing death.

Sometimes death occurs from the effect of the toxemia upon the brain; wild maniacal delirium wearing the patient out or a low, muttering delirium ending in coma and death. Sometimes the kidney bears the brunt of the attack and uremia is added to the toxemia of the infecting organism.

Occasionally the gastro-intestinal tract is most seriously involved, and there occurs a violent diarrhea or a marked fibrinous inflammation of the lining mucous membrane.

The most common and serious complications of pneumonia from which death may occur are meningitis, pericarditis, endocarditis, nephritis and empyema. These, however, will not be considered in this discussion, which is limited to the treatment of pneumonia.

To plan a rational mode of treatment in an acute infectious disease it is important to note the mode of recovery and the usual modes of death, and to establish such procedures as will tend to promote the former and prevent the latter.

Such a plan, in the treatment of pneumonia, may be divided into the following general heads: (1) To relieve toxemia; (2) to prevent failure of heart; (3) to meet complications as they arise.

For the relief of toxemia, there are three natural avenues of excretion by which poisons may be carried off; these are the kidneys, the bowel and the skin.

In all cases of pneumonia we have inflammatory involvement of kidney to a greater or less extent. The attempt to stimulate to excessive functional activity an organ in a state of acute

inflammation is worse than useless, so the use of stimulating diuretics is positively contra-indicated.

The bowel and the skin remain and nature has shown by the profuse sweat at crisis and the occasional critical diarrhea that these are the avenues that are preferred.

So our first indication in treatment, the relief of toxemia, may be met by induced sweats and mild catharsis. The mild catharsis is best produced by the administration of calomel at the onset of the disease to be followed by the use of a saturated solution of Epsom salts in moderate dose daily. The calomel dose may be repeated occasionally as the indications arise. The sweating is best and most easily induced—not by the administration of drugs—but by the hot mustard footbath scientifically given in bed with no disturbance of the patient. As much depends upon the proper method of giving this bath and as I have seen failures through lack of this knowledge, I shall describe the procedure in detail.

The patient, in a nude condition, lies between blankets with his knees flexed, his feet in the tub which has been introduced under the upper blanket, the long axis in the line of the patient's body and legs; another blanket passes from under the tub up over the end and over the knees of the patient; two to five blankets or a fewer number of blankets and a rubber sheet are then placed over the patient extending from the neck of the patient over the foot of the bed and tucked in around the foot-tub and side of the patient. The tub at first is filled half full of hot water in which a heaping tablespoonful of mustard has been dissolved—from time to time during the bath more hot water is added, care being taken that the water is poured against the side of the tub and stirred in by the hand of the nurse, in order to avoid burning the patient's feet. The bath is kept up from thirty to forty-five minutes according to the amount of sweating produced. During the administration of the bath cloths wrung out of ice water are kept constantly on the head of the patient. This sweating in connection with the stimulation to be referred to later, is, in the opinion of the writer, the most important of the general therapeutic measures.

Another measure of value in preventing further bacterial invasion is the frequent and thorough cleansing of the mouth with a mildly antiseptic solution. I think this a measure of considerable importance, as we know the pneumococcus is present in the mouth in considerable numbers.

While attempting to get rid of toxins by these means, it is important to put and keep the patient in the best possible condition to resist and overcome the toxemia that is present. For this purpose care should be exercised in the selection of a proper diet. This should be fluid and so far as possible should be sterile, so that no new poisons may be introduced. A large amount of pure water should be administered so that there may be plenty of fluid to flush the excretory organs.

It is best administered in small amounts at short intervals.

Moreover the patient should be placed in the best ventilated room possible to secure and one to which there is free access of direct sunlight. The free catharsis and profuse sweating, besides aiding in elimination of toxins, tend to dilate the capillaries, thus relieving the arterial tension and getting rid of the capillary resistance to the on-flow of the blood, making the work of the heart easier. One of the serious dangers we have seen is over distention of right heart. This can often be prevented by careful study of the lung condition as well as the state of the heart itself and the prompt institution of the procedure indicated. A careful physical examination of the chest should be made by the physician at every visit. In this way he can tell when congestion is beginning in any part; and vigorous local treatment will in many cases prevent the further progress of the morbid process. As soon as a portion of the lung is shown by physical examination to be in a state of beginning congestion, the prompt and thorough application of leeches, wet cups or dry cups over the part, will often stay the process there; or if it does not stop it entirely, will delay its progress twenty-four or forty-eight hours and give an opportunity for the clearing up of any previously involved portion of lung. My preference is for leeching or wet cupping. If dry cupping is resorted to, it should be very thorough, the skin and subcutaneous tissue rising up in the cup to as great a height as possible and turning blue or purple while there. The cups should be left on for a half hour and the process repeated every four to six hours. I have seen, post mortem, the direct anatomical evidence of the local value of this procedure, when thoroughly done. During the intervals between the applications of the cups the chest should be covered with a light woolen jacket. The poultice jacket should be relegated to the dark ages.

With ice applications I have not produced the relief of congestion desired. If, in spite of these local measures to relieve congestion, the process still persists and we begin to have evidence of overdistention or right heart, such as increasing cyanosis, the pulse losing its tension and becoming small and sometimes irregular, the liver enlarged, the veins pulsating and the area of cardiac dulness increasing chiefly to the right, whether a murmur of tricuspid insufficiency is present or not, prompt relief can usually be obtained by the withdrawal of 8, 10 or 12 ounces of blood from the median vein of the forearm. This procedure may be repeated several times if need be in the course of the disease. The procedure is of value both for its local effect in relieving the right heart distention and also for its general effect in withdrawing a decided amount of toxic material. At this time a little digitalis, given with due regard to its physiological effect, may be of decided value.

After the withdrawal of blood, and in cases in which heart failure is imminent without evidence of right distention, the subcutaneous injection of

normal salt solution has on several occasions proven of inestimable value. The use of the salt solution by rectum has also been of value, but of course does not give the prompt result that the hypodermic administration does. Whether the value of the procedure is dependent upon the restoration of bulk to the blood after the relief to the right heart has been obtained or whether the salt itself is of value, is worthy of investigation, the fact being established that in several cases that have come under my observation—in one of them three times—the administration of the salt solution certainly had a marvelous effect in averting an evidently impending death.

If more than one lobe is involved the regular administration of pure oxygen gas at stated times, shortening the interval and prolonging the duration of the administration if cyanosis persists or increases, or if the frequency of breathing progresses to dyspnea, has proven of undoubted value in a number of cases.

While these procedures to relieve the toxic condition and the local obstruction to the pulmonary circulation are being carried out, direct stimulation of the heart is of the utmost importance and should be begun as soon as the diagnosis is made and not delayed for the appearance of symptoms indicating cardiac failure. For this purpose our reliance should be placed upon strychnine, alcohol and ammonium carbonate or aromatic spirits of ammonia.

As soon as the diagnosis is made the strychnine should be begun in doses of 0.002 gram at four to six-hour intervals as indicated. The interval may be shortened and the dose increased as symptoms which call for such increase in dose appear. As much as 0.004 gram every two hours may be given hypodermically with the best results.

Next to strychnine, alcohol is our best stimulant. Nevertheless, in some cases it seems to produce decided cerebral disturbance, particularly in those addicted to its abuse. In such cases ammonium is a most useful substitute. These drugs are usually well borne by the stomach if combined with liquor amonii acetatis and administered in mucilage or milk.

In case of sleeplessness and restlessness chloralamid, chloral, Dover's powder, morphine and hyoscine hydrobromate are to be recommended in the order named; though with the thorough attention to the relief of toxemia by keeping the bowels and skin active, it is seldom that recourse to hypnotics is necessary.

To refer in any detail to the third indication in treatment, viz., to meet complications as they arise would carry me far beyond the scope of to-day's discussion; but I desire to say that under the eliminative supporting treatment outlined complications are rare.

Before closing I wish to utter a protest against the treatment of pneumonia by large doses of digitalis in the early stages of the disease as irrational and unscientific, being based on a wrong conception of the nature of the disease.

If our conception of the infectious nature of

pneumonia is correct, by the time the chill has taken place the disease is established, and any efforts to jugulate the disease by the use of remedies employed to overcome or prevent pulmonary congestion are most certainly misdirected; for preventing the change in the lung—and it is doubtful if the digitalis treatment can accomplish this—certainly will not overcome the toxemia; two of the most serious cases of pneumonia that have come under my observation have had no pulmonary involvement demonstrable by physical signs.

The treatment of pneumonia by the pneumococcus antitoxin is the natural and rational plan from the recognition of the infectious nature of the disease, but so far the attempts to produce a reliable antitoxin serum that will preserve its antitoxic powers have not been entirely successful, and consequently there are very great variations in the reports as to the results obtained by its use.

I have recently had an experience that convinces me of the utter valuelessness of the anti-pneumococcic sera that are on the market and I feel sure that until we obtain a true antitoxin for pneumonia such as we have for diphtheria, we will get our best results by recognizing the essentially toxic nature of the disease and treating it along the eliminative supporting lines here suggested which may be briefly summarized as follows:

1. The sustaining of the metabolic processes of the individual by the administration of easily digested or predigested foods in small quantities at stated intervals, the administration of large amounts of pure water for eliminative purposes and the administration of oxygen gas by inhalation whenever the absorbing surface of the pulmonary mucosa is involved to such extent as to interfere with proper metabolic oxygenation.

2. Elimination, (a) by the liver and bowel through the vigorous use of calomel and salts; (b) by the skin through sweats induced by external heat; (c) through withdrawal of blood when indicated by right heart distention.

3. Stimulation of heart by strychnine, alcohol or ammonium carbonate, and in suitable cases by the subcutaneous injection of normal salt solution.

4. The local treatment of the lung by leeching, wet cupping or dry cupping as indicated.

In a former paper on the same subject, presented to the Section on Therapeutics of the American Medical Association, in June, 1901, published in the *Journal of the American Medical Ass'n.*, Nov. 9, 1901, I reported 168 cases treated according to the plan advocated. These cases are retabulated here:

Onset.	Termination.	Result.	Age.	Crises, Complications, etc.
1, 1, '91,	1, 24, '91,	Recovery,	76	
2, 1,	3, 10,	"	14	
3, 9,	3, 28,	"	39	
2, 15,	3, 14,	"	52	
4, 14,	5, 21,	"	56	
8, 20,	9, 25,	"	82	
0, 31,	"	34	
11, 16, '93,	"	15	
1, 18,	"	29	

Onset.	Termination.	Result.	Age.	Crises, Complications, etc.	Onset.	Termination.	Result.	Age.	Crises, Complications, etc.
1, 18,	1, 31, '92,	Recovery.	74		11, 26,	12, 31,	Recovery.	63	Crisis ninth day.
1, 31,	2, 20,	"	54		1, 1,	1, 18, '98,	"	20	Crisis ninth day.
2, 5,	2, 24,	"	60		1, 15,	1, 19,	"	20	Crisis seventh day.
2, 7,	2, 21,	"	60		1, 29,	2, 24,	"	21	Crisis tenth day.
2, 9,	2, 11,	Died,	35	Alcoholism; D. T.	2, 26,	3, 9,	"	24	Crisis seventh day.
3, 4,		Recovery.	37		3, 1,	3, 29,	"	44	Chronic nephritis.
3, 6,	5, 20,	"	55	Chronic nephritis.	3, 17,	4, 15,	"	37	Crisis tenth day.
9, 30,	10, 14,	"	20		3, 28,	4, 15,	"	18	Crisis seventh day.
10, 13,	11, 1,	"	35		3, 26,	4, 20,	"	24	Pseudo-crisis fourth day, real crisis seventh day.
10, 20,		"	47		7, 2,	7, 17,	"	16	Crisis seventh day.
1, 6, '93,	1, 21, '93,	"	21	Erysipelas.	7, 17,	7, 31,	"	82	Crisis seventh day.
1, 4,	1, 19,	"	24		10, 10,	11, 21,	"	35	Crisis seventh day.
1, 9,	1, 25,	"	24		11, 15,	12, 17,	"	82	Crisis tenth day.
2, 22,	3, 15,	"	30		11, 28,	12, 8,	Died,	46	Purulent pericarditis.
2, 26,	3, 11,	"	22		11, 11,	12, 9,	Recovery,	18	Crisis seventh day.
3, 6,	3, 21,	"	45		11, 27,	1, 22, '99,	"	30	Crisis fourteenth day.
3, 27,	4, 11,	"	48	Entire left lung; patient was bled 16 ounces twice.	1, 10, '99,	2, 6,	"	43	Crisis ninth day.
9, 13,	10, 10,	"	23		1, 11,	1, 13,	Died,	45	Sick seven days before treatment; entire left, upper right.
11, 4,	11, 23,	"	20		2, 3,	3, 2,	Recovery,	13	Crisis tenth day.
11, 13,	12, 19,	"	35		2, 5,	2, 25,	"	40	Crisis tenth day.
11, 18,	12, 12,	"	50		3, 11,	3, 20,	Died,	32	Alcoholism; D. T.
11, 23,	12, 8,	Died,	62	Sick one week before treatment.	3, 26,	4, 29,	Recovery,	60	Crisis tenth day.
11, 27,	12, 4,	Recovery,	40	Tuberculosis.	3, 27,	4, 21,	"	56	Crisis tenth day.
12, 7,	12, 9,	Died,	60	Sick eight days before treatment.	4, 19,	5, 15,	"	83	Crisis tenth day.
12, 14,	12, 28,	Recovery.	57		7, 5,	8, 14,	"	27	Crisis tenth day.
12, 16,	1, 4, '94,	"	18	Endo- and pericarditis.	8, 8,	8, 19,	"	29	Crisis fifth day.
12, 26,	1, 9,	"	24		9, 21,	10, 27,	"	80	Crisis tenth day.
12, 27,	1, 9,	"	81		11, 25,	12, 16,	"	22	Crisis seventh day.
1, 7, '94,	2, 4,	"	32		11, 25,	1, 8, '00,	"	51	Crisis tenth day.
1, 23,	3, 15,	"	38		12, 10,	1, 1,	Died,	35	Crisis tenth day.
3, 8,	3, 29,	"	32		1, 12, '00,	1, 16,	Recovery,	45	Double.
3, 24,	4, 4,	"	48		1, 24,	2, 27,	"	58	Crisis tenth day; cysitis.
5, 20,	6, 6,	"	81		2, 10,	3, 7,	"	54	Asthma.
7, 29,	8, 22,	"	22		2, 19,	3, 7,	"	62	Mitral obstruction.
7, 30,	8, 24,	"	82		2, 20,	3, 19,	"	35	Crisis tenth day.
9, 25,	10, 29,	"	20		2, 22,	3, 22,	"	17	Crisis tenth day.
10, 7,	11, 21,	Died,	27	Typhoid fever.	2, 28,	4, 10,	"	34	Crisis seventh day.
10, 15,	10, 19,	Recovery,	54		3, 1,	3, 22,	"	34	Crisis tenth day; diphtheria.
11, 3,	12, 5,	"	29		3, 11,	4, 16,	Died,	26	Double.
11, 1,	11, 15,	"	20		3, 25,	4, 16,	Recovery,	23	
12, 2,	12, 24,	"	12		3, 10,	3, 26,	"	29	
12, 30,	12, 11,	"	40	Double.	3, 20,	...	Died,	86	Edema of lung; asthma; dilated heart.
12, 9,	1, 4, '95,	"	43	Crisis tenth day.	4, 1,	4, 6,	Recovery,	35	Relapsing pneumonia; three distinct attacks, with crisis on seventh, tenth and ninth days respectively.
12, 10,	1, 2,	"	21	Typhoid fever.	9, 29,	10, 12,	"	25	Crisis seventh day.
1, 11, '95,	1, 30,	"	33	Mitral stenosis.	10, 9,	12, 1,	"	35	Entire right lung; crisis tenth day.
1, 15,	1, 28,	"	32	Crisis seventh day.	10, 16,	10, 26,	"	39	Crisis fifth day.
1, 17,	3, 14,	"	50		10, 5,	11, 3,	"	12	Crisis fifth day.
1, 24,	2, 2,	"	80		10, 21,	11, 24,	Died,	23	
2, 2,	2, 19,	"	38	Crisis ninth day.	10, 25,	11, 1,	Recovery,	67	Crisis seventh day.
2, 12,	3, 7,	"	32	Crisis seventh day.	10, 31,	11, 27,	"	46	Crisis tenth day.
2, 13,	3, 25,	"	25		10, 25,	12, 18,	"	35	Crisis tenth day.
2, 18,	3, 12,	"	38	Developed lung abscess.	11, 14,	12, 5,	"	19	Crisis tenth day.
2, 28,	3, 19,	"	27	Crisis seventh day. Em-pyema.	11, 26,	12, 17,	"	54	Crisis tenth day.
2, 25,	3, 25,	"	50	Entire left lung; lower lobe of right.	1, 3, '01,	3, 7, '01,	"	82	Crisis tenth day.
2, 25,	3, 26,	"	20		1, 3,	2, 28,	"	50	Crisis seventh day.
3, 19,	4, 17,	"	14		1, 10,	1, 27,	"	50	Influenza.
5, 26,	6, 2,	Died,	50		1, 11,	2, 22,	"	40	Crisis tenth day; double pneumonia.
9, 22,	10, 5,	Recovery,	30		1, 19,	2, 14,	"	50	
10, 20,	11, 13,	"	5	Crisis ninth day.	1, 21,	2, 12,	"	46	Alcoholism; nephritis; entire left lung.
10, 20,	11, 11,	"	23	Crisis seventh day.	1, 30,	2, 1,	Died,	45	Double pneumonia.
11, 5,	11, 27,	"	33	Crisis nineteenth day.	2, 21,	2, 27,	Recovery,	49	Crisis seventh day.
11, 5,	12, 3,	"	18	Crisis twelfth day.	3, 13,	4, 1,	"		
11, 3,	11, 22,	"	23	Sick fourteen days before treatment. (Alcoholism.)					
11, 12,	11, 23,	Died,	33						
11, 29,	12, 7,	Recovery,	67	Crisis ninth day.					
11, 23,	1, 8, '96,	"	25	Crisis third day.					
12, 2,	12, 9,	"	24	Crisis tenth day, followed by serous effusion.					
12, 1,	12, 13,	"	48						
12, 2,	2, 23,	"	48	Crisis ninth day.					
1, 1, '96,	1, 10,	"	48	Alcoholism; sick two weeks before treatment; crisis March 16.					
1, 1,	1, 22,	Died,	48						
3, 12,	3, 18,	"	26						
6, 28,	7, 20,	Recovery,	50						
8, 12,	8, 31,	"	83						
8, 14,	9, 25,	"	1 1/2	Pericarditis.					
9, 17,	12, 8,	"	12						
9, 18,	9, 25,	Died,	30	Chronic nephritis, myocardial degeneration.					
10, 7,	10, 15,	Recovery,	61						
11, 4,	11, 16,	Died,	25						
11, 14,	11, 18,	Recovery,	78						
11, 14,	12, 16,	"	20	Double: crisis twentieth day.					
12, 23,	2, 17, '97,	"	26	Crisis seventh day.					
1, 2, '97,	1, 25,	"	36	Crisis seventh day.					
1, 9,	1, 26,	"	41						
1, 17,	2, 16,	"	25	Crisis ninth day.					
2, 10,	3, 27,	"	62	Morphine habits.					
3, 12,	4, 10,	Died,	24	Double, pericarditis.					
3, 20,	3, 26,	"	65	Nephritis, sick eight days before treatment.					
3, 20,	4, 2,	Recovery,	26	Crisis seventh day.					
3, 24,	4, 14,	"	44						
3, 29,	4, 22,	"	17	Crisis seventh day.					
8, 30,	9, 22,	"	32	Crisis ninth day.					
9, 25,	10, 14,	"	84						
11, 15,	12, 10,	"							

There are in this report 168 cases with 21 deaths. Of those that died five had been sick a week or more before treatment was instituted, and so can not fairly be considered, two suffered with chronic nephritis, one had asthma and a dilated heart as well as being 89 years of age; one had typhoid fever as a complication and two entered the hospital with delirium tremens, no history obtainable as to the length of illness and died in less than 48 hours. If these cases are excluded, as I think they fairly may be, it reduces the number of cases to 157 and the deaths to 10, giving a death rate of 6.33 per cent. I have now to add to that report the following cases:

Onset.	Termination.	Result.	Age.	Crises, Complications, etc.
5, 20, '01,	5, 31, '01,	Recovery,	35	Crisis third day; mitral obstruction.
9, 2,	9, 21,	"	77	Crisis tenth day.
9, 27,	10, 2,	Died,	48	
10, 1,	10, 21,	Recovery,	21	Crisis tenth day.

Onset.	Termination.	Result.	Age.	Crises, Complications, etc.
10, 2,	10, 30,	Recovery,	50	Crisis fifth day; double mitral lesion.
11, 11,	12, 2,	"	48	Crisis seventh day; mitral obstruction; chronic bronchitis.
11, 14,	12, 5,	"	30	Crisis ninth day.
11, 8,	12, 8,	"	35	Crisis ninth day.
11, 21,	12, 13,	"	22	Crisis seventh day.
11, 27,	12, 23,	"	35	Crisis eleventh day.
12, 16,	1, 2, '02,	"	56	Crisis fifth day.
12, 25,	1, 7,	"	57	Crisis seventh day.
2, 10, '92,	2, 27,	"	41	Crisis seventh day.
2, 19,	3, 4,	"	19	Crisis seventh day.
3, 5,	3, 19,	"	17	Crisis fifth day.
3, 11,	3, 30,	"	76	Crisis tenth day.
3, 1,	3, 31,	"	76	Crisis seventh day; chronic nephritis.
3, 2,	3, 31,	Recovered,	63	Crisis seventh day; chronic nephritis and bronchitis.
3, 24,	4, 5,	"	6	Crisis seventh day.
4, 8,	4, 13,	Died,	89	None; mitral insufficiency; dilated heart.
5, 18,	6, 17,	Recovered,	66	Crisis tenth day.
6, 6,	6, 30,	"	45	Crisis seventh day.
8, 6,	8, 28,	"	48	Crisis seventh day.
8, 2,	9, 16,	"	41	Crisis seventh day; alcoholic.
9, 2,	10, 25,	"	44	Crisis seventh and tenth day. Relapsing two distinct attacks.
10, 5,	10, 25,	"	32	Crisis fifth day.
10, 7,	10, 23,	"	18	Crisis ninth day.
10, 10,	10, 29,	"	23	Crisis ninth day.
11, 10,	11, 24,	"	64	Crisis seventh day. Dementia.
11, 1,	12, 5,	"	42	Crisis eighteenth day; migratory pneumonia; jaundice.
11, 9,	12, 14,	"	17	Crisis seventh day.
11, 29,	12, 12,	"	18	Crisis ninth day.
12, 1,	12, 31,	"	41	Crisis ninth day.
10, 5,	1, 20, '03,	"	70	Crisis ninth day; arthritis.
11, 25,	2, 11,	"	38	Crisis eighth day, followed by empyema and operation.
1, 6, '03,	1, 26,	"	7/12	Crisis fifth day.
1, 25,	2, 24,	"	37	Crisis tenth day.
1, 30,	2, 21,	"	56	Crisis ninth day.
8, 31,	9, 30,	"	50	Crisis tenth day.
8, 31,	9, 10,	Died,	52	None.
7, 28,	9, 3,	"	54	Empyema; operated; two distinct pneumonic attacks with crisis on seventh and ninth days; nephritis.
10, 10,	10, 18,	Recovered,	44	Crisis fifth day; mitral insufficiency; glycosuria; entire right and lower lobe left involved.

The cases occurred in the service of Dr. Chas. G. Stockton, whose assistant I am, in the Buffalo General Hospital; in my own service in two other hospitals in Buffalo, and in my private practice. Forty-two cases are included in this report. These added to the 158 previously reported make a total of 200 cases with 14 deaths, a death rate of 7 per cent. An analysis of these fatal cases shows that five were over fifty years of age, being respectively fifty, fifty-two, fifty-four, sixty-seven and eighty-nine years of age; that one was alcoholic, three had pericarditis as a complication, one being purulent pericarditis, and the other three were cases of severe double pneumonia. If I include every case that has come under observation it makes a total of 210 cases with 25 deaths, a death rate of 11.4 per cent.

In the last edition of Osler's Practice it is stated: "The careful and thorough analysis by C. N. Townsend and A. Collidge, Jr., of 1,000 cases, at the Massachusetts General Hospital, shows that when all fatal cases over fifty years of age were omitted and those patients who were delicate, intemperate or the subject of some complication were excluded, the death rate was a little over 10 per cent."

This is the same death rate that I have, without excluding any cases whatever. If the same classes of cases were omitted from my report it

would reduce the number of deaths to five and the death rate to 2.5 per cent.

As these cases are taken from both private and hospital practice, most of them being hospital cases, and not from a picked practice, I feel that I am justified in the conclusion that better results can be obtained from the method advocated than by any other plan of treatment of which statistics have come to my notice.

THE SANITARY ASPECT OF FOOD PRESERVATIVES.

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If an Egyptian fellah were offered as a gift one of our finest American steel plows, on condition that he abandon the use of his native one-handed, wooden plow, he would reject it with contempt. If asked if he was prejudiced against steel plows he would assert that he was not but would insist upon claiming for his wooden plow points of superiority over the former that made the latter immensely better. If foreign merchants should endeavor to push the sale of steel plows in that country there can be little doubt but that an organized effort would be established to suppress their use. So thoroughly fixed in human nature is the conservative instinct that it would be surprising to find any new and really good thing that did not meet opposition from some quarter. Food preservatives, like plows, have been in use from time beyond memory and yet recently introduced ones are subject to bitter opposition from people who dislike any change in food products. Like the Japanese woman who said, "Oh how disgusting" when told that Americans drank milk from cows these people have a sense of fear or disgust at an innovation which they dislike. In a prize essay on Preventive Medicine, lately published, the author says: "The use of chemical preservatives in food is to be prevented by stringent legal enactment." The author evidently intended to say "modern chemical preservatives" and "ought to be prevented" but in his haste got his meaning obscured. He surely did not intend to have laws forbidding the use of sodium chloride, acetic acid, or ethyl alcohol. These chemicals are so thoroughly established in popular favor, for this purpose, that any effort at stopping their use would be as futile as trying to sweep back the Atlantic ocean with a broom. When the term "chemical" is attached in this way to food preservatives it is because the author thinks it carries an opprobrious sting, forgetting that the old-fashioned preservatives are as much chemicals as are the more recent ones. The constituents of vinegar, salt, alcohol and smoke that render them antiseptic possess no superiority over the articles which biased people wish suppressed by law. Table

salt, the one most commonly used as a preservative of meat, has more serious drawbacks than its recent substitutes. In the first American edition of Wagner's Chemical Technology (p. 795) we are told that "salt, however, not only withdraws water from meat but also, as has been proven by Dr. Liebig's researches, some of the very best and essential portion of the juices of the meat, including albumin, lactic and phosphoric acids, magnesia, potash, kreatin and kreatinin. Hence it is clear that unless these substances are in some way or other added to the salted meat, its use as food for a lengthened period cannot fail to become injurious to the system, and it is surmised that scurvy is due to this condition of salt meat." Dr. Burnet declares (Wood's Med. and Surg. Monographs, Vol. XI, p. 598) that "Experience is not wanting to prove that cases of scurvy are, in the absence of complications, rapidly cured by dietetic means." He also informs us that of late years the number of cases of this disease has very markedly decreased. The decrease, it is important to note, is coincident with the adoption of modern preservatives. As barreled, corned beef, salty salt bacon and brine-preserved fish have grown into rare commodities, scurvy has diminished in intensity and frequency. Osler tells us (Practice, p. 393) that "the salted sturgeon used in parts of Russia has sometimes proved fatal to large numbers of persons." We thus see that besides scurvy there are other dangers attached to the use of salted foods. Salt is so poor an antiseptic that bacterial invasion of food is a danger to be counted with. In a quite extensive epidemic of pleuropneumonia that occurred in Middlesbrough, England, mentioned by Allbutt (System of Medicine, Vol. III, p. 789) we are told that "the investigations of Dr. Ballard clearly traced the source of the epidemic to the use of American (salted) bacon. . . . This bacon was proved to be poisonous to animals fed with it, and lung lesions were produced."

In some experiments performed by Prof. E. K. Dunham, of Bellevue Hospital Medical College, for Dr. E. L. Keyes, of New York, (Trans. Cong. Amer. Phys. and Surg., Vol. III, pp. 163, 164) it was found that while one part of salicylic acid in 960 parts of solutions would kill *Staphylococcus pyogenes aureus*, *Streptococcus pyogenes*, and *Bacillus coli communis* in two minutes one part of sodium chloride (table salt) in three parts of solution made not the slightest impression in ten minutes and in one experiment they were alive and vigorous in twenty-four hours.

Is it then any wonder that bacteria can thrive in salt while salicylic acid as a preservative is so much superior? These experiments did not show how very much superior the acid may be since far more acid was used than enough to produce the same feeble effects as did the salt. They merely show that the acid is far more than 320 times as potent as the salt. They

also demonstrated that the salicylic acid is immensely safer to use than salt, so far as the effects, power for power, are upon the consumers. One can safely swallow, without the slightest inconvenience, 20 grains of salicylic acid, but we would pity the human being that ventured upon using at a single dose 6,400 grains of salt.

Here we might add that in spite of all the hue and cry of interested parties against salicylic acid that in an examination of every work on medical jurisprudence and toxicology found in three large libraries, one of them being an exclusively medical library, not one contained any reference to death from this substance. The works of Herold, Clarke Bell, Woodman and Tidy, Blyth, Reese, Hamilton and others were among those consulted. They showed deaths from tartaric acid, citric acid, acetic acid, from overdoses of ethyl alcohol, etc., but not one from salicylic acid. Evidently Prof. Hobart A. Hare had a somewhat similar fruitless hunt in getting together material for his article on salicylic acid in his Practical Therapeutics, or his Boylston Prize Essay of Harvard University for he tells us that so far as this acid is concerned "it is worthy of remark that very few deaths have taken place" (p. 343). Cushny, in his Pharmacology and Therapeutics, third edition (p. 423), tells us that it "is poisonous only in comparatively large quantities." On page 31 of Blyth's work on "Poisons," 1884, a table is given of all deaths from poisons in Great Britain for ten years in which tartaric acid, acetic acid and alcohol show rates of 12 to 17 deaths in each ten thousand of population but not one for salicylic acid or any other modern preservative.

With this array of facts what can be thought of those who strive to create terror in the public mind against so decidedly useful an article? Why seek to suppress an article that has a showing so clean that it is almost impossible to find a record of a death from it and yet complacently permit baking powders to be sold, without let or hindrance, when tartaric acid has killed so many? Why permit people using vinegar when acetic acid counts its deaths by scores or citric acid when its record is nearly as bad? It may be said that the latter are not used in concentrated form and they are usually consumed in the form of their salts. But this is equally true of salicylic acid. It is as senseless to condemn the use of salicylic acid, as diluted in food, as it would be to make a law, forbidding any ones selling lemons to the public. Citric acid is poisonous, it has killed scores, it is not a normal constituent of the body, it impairs digestion in its salts, and against it can be urged most of the stock arguments opposing food preservatives. Experimental evidence as well as the testimony of the results of use on millions of human beings both conspire to demonstrate the harmlessness of modern food preservatives, in the quantities required for such a purpose, and, because few have cared to battle with conservatism, they have been mercilessly and senselessly condemned. Immense as is the consumption in all parts of the

world not a single death has ever been recorded against their use in this capacity. Nor has the first case yet been found where deaths from food-stuffs protected with salicylic has been reported. Unprotected food, canned foods, that it is fair to assume were pasteurized or had been treated to high temperatures in an attempt to sterilize, salted foods, smoked foods, and dried foods have been fairly proven guilty of causing death. With so many people opposed to the use of salicylic acid in foods it is pretty certain that if any of the reported cases of meat, canned fish and other poisonings had contained it there would have been no hesitancy in telling this fact. Allbutt tells us that in the epidemics of food poisonings he had referred to one important feature "is that the outbreaks almost invariably occurred from food which had been prepared a day or so before being eaten—as if the infective micro-organism had gained access to the food after it had been cooked." (System of Medicine, Vol. III, p. 790). Anders speaks of mince meat, "warmed over" and carelessly kept kitchen salad as having caused "violent symptoms of poisoning" (Practice, p. 1,219). If these authors are reliable—and they are among the best in the world of medical science—then pasteurizing and sterilizing of food does not save the public from danger. If deaths and sufferings from severe food poisonings occur from kept-over food how can anything short of treatment with reliable preservatives save the careless public? If multitudes have been killed and other multitudes tortured in a most agonizing manner by the use of unprotected foods and not one soul has ever been shown as a sufferer from modern protected foods where is the wisdom in passing laws forbidding the use of protectives?

Is there any evidence in vital statistics of the ill effects of the rising tide of chemically preserved foods. The millions of tons daily consumed in all parts of the world should give some evidence of bad effects, if there are any. Places that consume most should show the highest average death rate in diseases of the intestinal tract. Have there been any signs of reduced public vitality during the years in which the consumption of preserved foods has been on the increase? Why do not the enemies of food preservatives consult such statistics and give us the figures that prove their contention instead of dealing in bald assumptions? Let us see if we can find out. The use of food preservatives of the condemned kind has been growing with more than tropical vigor for over thirty years. It is common knowledge that during the same time public health has been improving in a somewhat similar manner. There is then nothing in this that favors the idea that modern chemical preservatives are bad. The coincidence in time of the improvement in public health and in the increased use of preserved foods is remarkable. The improvement may have been in spite of the use of the preservatives but if it has the preservatives could not have seriously impaired the disease resisting power of the mil-

lions who have used them or the epidemics of influenza, and other contagious diseases, should have cut a deeper swath. The fact that the germs of such diseases, after gaining lodgment in human bodies that should have been weakened in resistance, did not decimate the population, as measles decimated the Fiji Islands, should be taken as some evidence that the theory of such weakening cannot be true. In 1886 the chemist of the Department of Health of the City of Brooklyn, N. Y., appealed to the Commissioner for the right to make raids upon brewers for using salicylic acid in their beers (*American Analyst*, April 1, 1887). He said: "I am of the opinion that it is time that the addition of salicylic acid to articles of food receive a check at the hands of sanitary authorities. I have made examinations of several different kinds of bottled beers manufactured and sold in this city, and have found a number of them to contain salicylic acid. The list examined contained some of the Western beers, which were also found to contain it. I would respectfully recommend that some action be taken by this Department toward the prohibition of this injurious adulteration." In this report we probably have the beginning of the systematic raids against food preservatives that have been going on in this country ever since. It is quoted by the chemist of the Department of Agriculture (Bulletin 13, p. 301) as "a very strong argument in favor of prohibiting entirely the use of this preserving agent." The Brooklyn chemist got the right to check the use of this agent and used that right. What were the results? Did the health of Brooklyn improve? In 1886 the death rate in that city was 22.5, in 1887 it rose to 23.5, in 1888 to 24.0, in 1889 it kept to 23.7 and in 1890 it made another ascent to 24.5. Here we see a steady increase in the death rate during the very years in which the raid was kept up. It is true that the raid may have had nothing to do with raising the death rate but it is equally true that these figures do not prove that the raid did the people of Brooklyn any good. During those same years Philadelphia allowed salicylic acid to be used in the beer of its citizens and the death rate was 22.1 in 1887, 20.3 in 1888, 20.0 in 1889 and 20.7 in 1890. Boston, that like Philadelphia, failed to make a crusade against salicylic acid, showed a death rate of 23.9 in 1887, 23.7 in 1888, 23.3 in 1889, and 23.7 in 1890. That the death rate should rise in the city which sought to suppress the use of salicylic acid and either sink or remain stationary in the two neighboring cities of about equal size is, to say the least, peculiar, and that peculiarity is emphasized when we learn that the larger city of New York, with only a river to separate it from Brooklyn, had a sinking death rate during the same years.

A study of the vital statistics of the United States as found in the Report of the Twelfth Census, published in Vol. III, 1902, gives us some highly interesting figures in connection with this subject. If the opponents of food preservatives have not taken the pains to look

into this part of the subject the writer would earnestly commend it to their attention. Here we find the unbiased report of the results of a trial of the effects of preservatives on Eighty Millions of people. This is certainly a much larger "poison squad" than Dr. Wiley ever could get under his supervision. Let them turn to page 227 and look at the table giving the death rates per 100,000 from diseases of the stomach. In such diseases, if in any, the bad effects of preservatives should be discoverable, for reasons that are no doubt obvious to the duller intellect. Let us consider the statistics for 1900.

It is a well-known fact that city people consume more beer—salicylated and unsalicylated—than do country people, man for man. It is an equally well-known fact that country people raise nearly all the food consumed by themselves and that they are therefore not compelled to depend upon so-called "doctored" foodstuffs. The pork is that of their own salting. The butter is that of their own making. Their jams and jellies, fruit juices and homemade wines seldom know any stronger preservative than white sugar. Their milk and cream are untampered with. What do the statistics of the United States Census collectors tell us about their superior health and particularly their freedom from affections of the stomach and alimentary canal, as compared with their "poisoned" brothers of the cities? The total for every State where registration of such facts was procured gave the death rate from such diseases as 18.1 in the cities and 20.7 in the rural districts. In Maine for every 16 city men that died from diseases of this kind there were 19 country men perished. In Massachusetts, for every 147 city men there were 166 country men; in Michigan for every 198 city men there were 207 country men; in New Hampshire for every 201 city men there were 213 country men; in New Jersey for every 196 city men there were 216 country men; in New York for every 182 city men there were 217 country men; in Rhode Island for every 134 city men there were 145 country men; in Vermont for every 194 city men there were 252 country men. Surely the people who denounce preservatives in foods can get but small consolation from such figures as these. Will they kindly come forward and tell us what it means? Can it be possible that nature herself has conspired to demonstrate what they believe to be the sacred truth is after all a mistake? Now let us examine these same figures geographically. Vermont, whose citizens are chiefly found in villages, small towns, and on farms shows a death rate, from diseases of the stomach, of 24.4, while Massachusetts, with its teeming multitudes of factory workers, compelled, from economy, to almost live on preserved goods, had next to the lowest death rate, from such diseases, of any State in the Union. For each 208 deaths from stomach diseases in rural Vermont there were only 151, or less than two-thirds the number in Massachusetts.

The packed, ill-housed, salicylated beer-drinking, preserved-food-eating population, of factory covered Rhode Island, showed the lowest rate of any State. If salicylic acid damaged their stomachs very much they certainly do not show it in their vital statistics. Maine, with its practically successful attempt at prohibition, showed 184 deaths of its citizens from such diseases as against only 138 for the same number of persons in salicylated beer-drinking "Little Rhody."

If we turn now to the table showing "for each grand group in the United States, the proportion of deaths from diseases of the digestive system during the census year, per thousand deaths from known causes in the aggregate and by sex, for the cities and rural districts" we find the same preponderance for the whole United States as was shown by the first table for the registration States. We also see that it applies with equal force to a larger class than diseases of the stomach, but still to diseases that would primarily, be expected to first respond to any ill effects that might exist in preservatives. Each of the 21 grand geographical groups tells the same tale of death for country people as against city people. But now we come to a still more startling fact, that we hope our pure food advocates will study with great care. It is an undisputed fact that fewer women drink beer than men and that of those women who do drink beer proportionately less is used by them than by men. Their chances, therefore, for consuming large amounts of salicylic acid—as well as of alcohol, which is also antiseptic—are less than are the chances of the men. If salicylic acid is the dangerous thing, which anti-preservative men wish us to consider it, then those whose chances for using the largest amount of it are greatest should suffer most. This certainly must appeal to everybody as a fair inference. Now, what are the facts, as given by the statistics, for every one of the grand geographical groups? With very few exceptions, and these of regions containing great numbers of negroes, the deaths from diseases of the digestive system are highest among women. The refined, non-beer drinking women of the north, east, and west died faster of such diseases than did their beer drinking husbands. The coarse, masculine-like negro women of the south, with habits much like those of husband, brother and father, kept close to, or went below the death rate, from such causes, as males. Those of cities, who ape their more refined Caucasian sisters, showed a much closer agreement to the death rate of the whites. More of them died than of the men in the Southwest Central Region, the Southern Interior Plateau, and the Ohio River Belt. In the country part of these regions more men died than women. In the Gulf Coast Region more men died than women, of such diseases. The negro women of the Gulf Coast do not so readily imitate white woman's habits of life. If we now turn to the geographical totals we discover a few more significant indications that the disuse of preservatives does not conduce to longevity as it ought to

if the opponents of their use are right. Take, for instance, the prairie regions of our country. There the deaths from diseases of the digestive system are 732 per ten thousand.

Compare this with the North Atlantic region. In the prairie region there is a majority of farmers and residents of small villages. In the North Atlantic coast region the majority are denizens of cities and extensive users of preserved foods and salicylated wines and beers. In this latter region there were only 476 deaths, from the diseases named, in ten thousand. In the still more rural population of the northwest timber belt, where cities are few and far between and where roads are bad and transportation expensive, the deaths were 746 in ten thousand. There beer is probably a rarity, preserved goods unnecessary and home produced provisions the rule. The prairie belt does not show as high a death rate as the northwest timber belt, even if it is the very highest for all other regions of the populous part of the United States. These are significant facts that we would like to have those explain who denounce the use of preservatives. What is it that makes the users of salicylated and borated foods appear to be so much freer from disturbances of the digestive system than those whose location would seem to negative the supposition that they use such foods freely? We will wait for a reasonable explanation of this condition of things from those who tell us that disaster and disease are the lot of the average user of foods preserved by antiseptics.

As if in mockery of the exceeding positiveness of the enemies of food preservatives the statistics supplied by our census gatherers show figures that are still more emphatically against the former at the very places where, of all others, they should have sustained their contention. Take, for instance, our ministers of the gospel, who are, as a class, opposed to the use of beer, and compare them with saloon-keepers, a very large proportion of whom drink beer, and what do we find? The death rate of clergymen is 23.5 per 1,000 and that of saloon-keepers only 13.3 per thousand. No matter what the causes may be that make so fearful a difference one might expect to find a better showing for the men who are not being dosed with "doctored" beer from morning till night, from January to December, as the saloon-keepers are. Neither is it disease of the nervous system nor greater age that wholly cause this wide difference. Since the death rate in clergymen from diseases of the digestive system was 106.5 and that of saloon-keepers, from the same cause, was only 60.4. The men whose stomachs and intestines were injured (?) by salicylic acid seem to have been benefited by the so-called injury, while those who, according to the theorizing enemies of protectives, should have had the fewest cases of this kind of disease had enormously the most. It is a favorite idea of these theorizers that the kidneys eliminate all salicylic acid and that these organs are injured by such eliminating. While the theory lacks a

basis of fact we wish here to point out to them that the ministers had a death rate of 438.6 from diseases of the urinary system and the saloon-keepers only 126.6 from the same disease. Does this indicate that salicylic acid injures the kidneys? How glorious an illustration this would have been for them if the figures had been reversed.

Over three times as many ministers as saloon-keepers with such diseases constitutes a fact that we hope the anti-salicylic acid people will ponder over when next they discourse upon the dangers of this acid to the kidneys. Now, let us turn to the German element of our population. They certainly get as much salicylated beer as any other of our citizens. Suppose we compare them with the Irish-Americans. The latter, as a rule, prefer whisky to beer, and as whisky is not salicylated it will give us a good chance to discover if there is damage done by the salicylic acid upon our German-Americans. In order the more certainly to settle the point regarding the part played by the alcohol in the matter let us consult the figures on alcoholism. Those Americans having Irish mothers have a death rate of 17.7 from alcoholism while those whose mothers are German have only a death rate of 6.1 from the same cause. With very nearly the same numbers of persons, within the registration regions, the Irish have nearly three deaths to every one among the Germans, from alcoholism. In diseases of the stomach the Irish-American death rate is 25.8 and the German-American only 17.7. Is it the salicylic acid which the Germans take that benefits them? Again, let us turn to the favorite idea of the foes of preservatives who claim that salicylic acid damages the kidneys. Here we have figures that bring us right down to the kidneys alone. The death rate among Irish-Americans from Bright's disease is given as 134.8 while for German-Americans it is only 86.8. Can it be possible that our census takers conspired with the antiseptic sellers and have falsified the returns? Turn to these returns in whatever direction we please and they all seem to indicate that there is something wrong with the theories of the enemies of food preservatives. While there are doubtless many factors at work causing the remarkable figures here presented, one thing seems quite certain, that they fail to indicate the slightest evidence of harm in the directions that harm should appear, if preservatives were injurious to public health.

In view of the fact that vital statistics give not the slightest encouragement to the idea that food preservatives tend to impair the action of our digestive organs, it might be well to enquire as to whether there is anything in the nature of the most efficient preservatives to, in the slightest degree, support the gratuitous assumption of their opposers. When we were ignorant of the distinction between enzymes and microbes we called them both ferments. How simple was the inference then made that what would hinder fermentation must hinder or hurt ferments. When

digestion was found to be a kind of fermentation, how easy it was to assume that anything that would kill a ferment, *i.e.*, microbe, would stop digestion. Prof. Sedgwick tells us in his *Principles of Sanitary Science* (p. 347) that "there is perhaps no subject in which popular errors are more prevalent than in sanitary science," and the fermentation error is one of the most common. It originated in ignorance and is perpetuated by the same agent. Enzymes are as distinct chemical bodies as are sugars or salts, and are therefore subject to chemical laws while microbes are living entities that are injured or killed by their special poisons. If salicylic acid is deadly to the yeast plant it in no way follows from this that it is destructive to pepsin, trypsin, diastase, or any other enzyme. If it arrests the fermentative action of the yeast by killing the plant what earthly connection can any sane mind see between this and inhibiting the production of pepsin by keeping pepsin from supplying a hydroxyl group to albumin. Alcohol encourages the growth of the vinegar plant but interferes with the action of pepsin. Hydrochloric acid aids pepsin in its action but kills many kinds of pathogenic bacteria. Where then is there any room in sane thought for the conception that what will hurt a living ferment will hinder a non-living enzyme. On the strength of this exceedingly silly delusion laws have been passed condemning and forbidding the use of food preservatives in a number of States. Analysts, ignorant of the origin of this superstition, keep repeating it as a truth, in their reports, from year to year. Nearly every substance under the sun has some retarding effect upon enzymes. This is not because they are able to kill living ferments. On the contrary many of them are the special food of such ferments. Salicylic acid is an exceedingly potent destroyer of organized or living ferments and there is no doubt but that like nearly every other substance it does interfere with the action of pepsin, trypsin and diastase. Its action on the latter, however, bears not the slightest relation to its action as a destroyer of bacteria. In the small amounts in which it is used in foodstuffs it retards digestion but little. When its compensating quality of acting as a stimulant to the stomach is brought into play it overcomes its retarding power and really becomes an aid to digestion. Under the head of Physiological Action, Bartholow says of it: "In small doses salicylic acid may stimulate digestion" (*Materia Medica*, 1903, p. 391). Cushny, in his *Pharmacology and Therapeutics*, tells us that "the salicylic preparations produce a slightly augmented flow of bile" (p. 416). They are therefore aids to the healthy action of the intestines.

If the oft-repeated charge that salicylic acid interferes with digestion was true—and as true as the enemies of food preservatives try to make it out to be—what of it? This question may stagger them. The claim that the rendering of part of the food we eat indigestible is injurious to

health is another superstition of so-called sanitary science. In our present stage of civilization it would be a blessed thing for more than half the people if something could be given them to do just what these theorists imagine food preservatives do.

Brunton, in his interesting "Lectures on the Action of Medicines," says: "Constipation in ordinary people is generally due to the fact that the food they take has little or none of the stimulating qualities that ordinary diet would have in uncivilized countries. . . . They ground their wheat in the handmill, and then baked their bread of this coarse meal, but such meal is hard and gritty, and contains a great deal of indigestible residue, which would tend to keep the bowels of those taking it regularly active. Nowadays we have wheat so finely ground that all the indigestible outer part is taken away from it, and we have nothing but the starchy interior of the wheat remaining." It is a trite saying that most men eat too much and it would be a blessing to them if someone would supply them with something that would render part of what they eat indigestible and at the same time antiseptic. Every step in our progress toward the preventing of disease germs being carried into us by our nitrogenous food has resulted in lessening the digestibility of that food. Cooking renders meat, eggs, milk, fish, etc., harder to digest. The use of salt, smoke, drying, alcohol, and vinegar all increase the indigestibility of the food on which they are used. Sterilizing does the same. Where then is the sense of hurling condemnation at the newer chemical food preservatives for doing just what all other methods of protecting food from infection do, particularly as the so-called evil complained of is really not an evil but a blessing. The ideal, perfectly aseptic condition of food is something everybody would like to have. But it should remain aseptic till eaten. The time will probably never come when such an ideal will be reached.

The attempt of half informed people to hasten its arrival, by bowing down to the fetish of legislation, can only accomplish what all crude attempts at reform invariably accomplish, retardation of progress. Imagine laws being passed forbidding the use of antiseptics by medical men because their action produces results inferior to the aseptic treatment of wounds. What would result? It is plain to be seen by every medical man that aseptic conditions are only possible under certain favorable conditions. Much as one might wish to treat every wound aseptically in practice it is impossible. A law compelling aseptic treatment or none would simply be a law signing the death warrants of thousands of innocent victims. The conditions here are perfectly analogous to those that exist in the protection of food. Can it be possible that our State laws which prohibit the use of modern antiseptics in food are the signed death warrants of multitudes of people? To many intelligent men and women it looks that way and the vital statistics of our country point in the same direction.

MEDICAL PROGRESS.

OBSTETRICS AND GYNECOLOGY.

Tuberculosis and Pregnancy.—An excellent summary of the views held at the present day of this important question is given by W. HAHN (Berl. klin. Woch., Dec. 28, 1903). He also reports five cases which came under his own observation. He states that pregnancy is a severe complication of tuberculosis, the severity of which increases with each pregnancy. Important among the prophylactic measures should be the prevention of conception among tuberculous women. If pregnancy has taken place the woman should be kept under careful medical observation, and if the tuberculous disease grows worse, abortion should be strongly recommended. During the later months of pregnancy the induction of premature labor does not offer any advantages over labor at full term, and is fraught with seriousness for a tuberculous patient. Moreover, as a tuberculous mother may give birth to a healthy child with fair chances of good health later on, it would be unfair to needlessly sacrifice the life of the infant. He does not believe in universally interrupting the pregnancy as advocated by Maragliano and Hamburger.

Separation of a Normally-situated Placenta.—The early separation of the placenta during labor is a rare and dangerous complication, and it is not commonly known that this accident may happen with a normal placental insertion. G. SCHICKELE (Münch. med. Woch., Dec. 22, 1903) states that hemorrhage early in labor is the prominent symptom; it may be internal or external, sudden or gradual in onset and oftentimes its effects upon the system are rapid and pronounced. In the worst cases the entire placenta separates at once, but more often the dissection takes place more slowly and by virtue of a retroplacental hematoma. The placenta sometimes falls out of the vulva directly after birth, sometimes the third stage takes a perfectly normal course. The prognosis is fair and the treatment calls for dilatation of the cervix and rapid delivery with the forceps or version. Since the fetus is generally dead, craniotomy will often be indicated. The etiology is obscure, but often a necrosis of the decidua is found, probably due to vascular disease.

Hernia of the Genital Organs into the Inguinal Canal.—Hernia containing either Fallopian tubes or ovaries is a very rare condition, says LEOPOLD LE NOUENE (Gaz. de Gyn., Nov. 15, 1903). There are in the literature not more than a dozen cases of hernia in the inguinal region containing the uterus outside of pregnancy. The writer has observed two cases in the service of Dr. Sorel; one, a simple hernia of the adnexa and the other a hernia of the uterus and the adnexa, the tubes of which were in a suppurating condition. In the first case the right ovary seemed to have entered the sac and to have been followed by the tube, which, according to Lockwood, always takes place in this condition. Curveilhier and Dolbeau hold that the tube is the first to prolapse and the ovary then follows it. The majority of genital inguinal hernia show either inflammatory or neoplastic changes in the genital organs (cystic degeneration, dermoid or hydatid cyst or cancer). Peuch reports 98 cases of malformations where there were various anomalies, such as female hermaphroditism, absence of the uterus or an infantile state of this organ. It is certain that in the larger majority of the cases the inguinal hernia is accompanied by some malformation of the genital organs. In the author's second case, both tubes had entered the hernial sac first, but the ovaries had been dragged in later. There was also present a double pyosalpingitis. Operation was rendered difficult because of this condition. The patient

was operated upon because it was thought that she had a strangulated hernia, but there were no signs or symptoms of intestinal obstruction present.

The Blood and Urine in Eclampsia.—For the purpose of deciding whether eclampsia is a consequence of insufficient renal activity and can therefore be ascribed to a uremic intoxication, an investigation was carried on by W. ZANGEMEISTER (Archiv f. Gyn., Vol. 70, No. 3). An explanation of this should be secured from examinations of both blood and urine. Before any opinion can be expressed on abnormal conditions, it is necessary to be acquainted with the normal relations of blood and urine as found in healthy pregnant women. The same author has already shown that the physiological make-up of blood and urine in pregnancy varies considerably from the non-pregnant state. From an examination of a large number of specimens of the blood taken from eclamptic cases, he does not find that there are any points upon which the uremic etiology of the diseases can be based. There is a diminution in the alkalinity of the blood, and at times an increased molecular concentration, together with a larger amount of crystalloidal nitrogenous bodies, but these must be considered as an accompaniment of the diminished diuresis which is usually present during the course of the disease. The factors just enumerated are subject to greater variations in the blood of eclampsia patients than otherwise. The most noteworthy appearance in eclamptic blood is the extreme variation in the quantity of red cells to the quantity of the blood plasma. The blood contains on an average a larger number of red cells, and in fact may be compared to a "paste of corpuscles." The rapid disappearance, and even more so, the rapid formation of this condition, shows that the cause of this phenomenon is not to be found in an overproduction of these elements. The proliferation itself does not represent the cause of the eclampsia, as it is absent in many instances. Nor does it result from the attacks, as it may appear without any seizures having been present. The only way in which the phenomenon can be explained is that during the course of the disease severe circulatory disturbances occur, as a result of which a considerable amount of plasma leaves the blood. Concerning the urine of normal pregnancy, the author has shown that during the last month, there is an increase in the amount passed during twenty-four hours, the ammonia salts are slightly increased, and the chlorides are about the same as in the non-pregnant woman. The phosphates are, as is well known, decreased in amount—this being ascribed to the fetal bone formation. During labor it was found that less water and salts were excreted by the kidneys than during the period immediately preceding. Especially is the excretion of chlorides diminished; that of the phosphates and ammonia salts is less marked. A very complete series of analyses was then made of the urine of numerous cases of eclampsia. These do not admit of being abstracted and the results obtained do not lend themselves to an explanation of the manner in which the irritation of the vasomotor centers is produced. Whether this is due to toxic conditions or to a reflex nervous disturbance is therefore still a matter of doubt as far as the author's findings are concerned. If one has to do with a toxemia, it may be stated with considerable certainty that the poison does not result from insufficiency of the renal function nor does it leave the body through the kidneys, unless in an entirely changed form a considerable time after the disease has subsided. In other words, for the elimination, or more properly the destruction of this hypothetical toxin, the renal function is not called into play. The poison, moreover, does not bring about any increase in the molecular concentration of the blood. The changes found in the

body in an eclampsia case may also be accounted for without the intermedium of a poison. The author brings forward the following facts as against the idea that a toxin is present: The earlier the course of the pregnancy or the later in the puerperium the attack comes on the more severe it is apt to be, and it is more apt to occur with the first labor pains than after these have been present for some time and have produced a toxin or thrown the same into circulation. Although there may be some basis in fact for assuming the toxic theory, the author is inclined to the belief that this is questionable and that later investigations will show that the eclamptic attack is brought about in some other way, possibly as a purely reflex nervous phenomenon.

Paralysis of Abdominal Sympathetic Following Labor.—After abdominal section, this condition is not of rare occurrence, especially in those cases where a large tumor has been removed from the abdominal cavity. After delivery, EDWARD P. DAVIS (*Am. Jour. of Obstet.*, Dec., 1903) finds that there are certain cases where the fetus is unusually large, where there is polyhydramnios or in exhausted women, the same condition is observed. Here the author reports a case where there was no hemorrhage, the child small, and the mother was not exhausted. She was highly neurotic. Her excretions required frequent stimulation during pregnancy. During delivery, extensive laceration was threatened, so the patient was immediately anesthetized by ether and easily delivered with forceps. After labor she complained much of general abdominal pain, and upon examination a doughy mass was found in the left upper portion of the abdomen. Cathartics failed to produce good results, but were succeeded by vomiting and gradually increasing distention of the abdomen. Efforts to move the bowels by enemata were unsuccessful. The temperature varied from 99° to 102° F., but symptoms of sepsis were wanting. Rectal examination showed that there was fecal impaction. The patient was stimulated and given large ox-gall enemata. On several nights there were attacks of syncope. Gradually with this treatment the fecal mass was softened and the bowels cleared. Later predigested food was taken and retained, and she finally made a tedious recovery. Examination after convalescence showed the pelvic organs to be normal, the abdominal walls contracted and tenderness absent.

The Value of Vaginal Cæsarean Section.—There are over 60 cases of vaginal Cæsarean section reported so far, says M. STAMM (*Am. Jour. of Obstet.*, Nov., 1903); the majority of them were undertaken for cancer of the uterus, but the number performed for puerperal convulsions is also rapidly increasing, and it seems that this trouble will furnish the chief indication for the operation in the future. Most authorities seem to agree that rapid delivery is the most important measure in reducing the mortality in eclampsia. The operation consists in exposing the uterine portion by a large speculum or forceps and grasping it with two pairs of forceps on either side of the os. A longitudinal incision 5 to 7 cm. is then made in the anterior wall of the vagina, down to the os uteri. The loose cellular tissue is then opened with scissors, between the bladder and the cervix. The bladder is pushed back, with a small piece of gauze, and, as far as the internal os, and, corresponding to the height, a sagittal incision through the anterior wall of the cervix is added. The upper margins of the wound are grasped with forceps in a manner similar to morcellation and myotomy. This exposes a further portion of the womb, the bladder is pushed up more, and another incision is made through the lower segment of the uterus. If this maneuver is repeated a few times an incision of 8 to 12 cm. can

readily be made under the guidance of the eye and without opening the peritoneum. This incision is generally large enough to admit the hand and to extract the mature child. Should it not be sufficient, however, a similar procedure can be followed at the posterior portion. In the majority of the cases it is perhaps best to wait for the natural expulsion of the placenta, or, if it does not follow soon, some pressure can be made upon the uterus. This operation is best done in a hospital, though it can be performed at the patient's house if circumstances are such as to make it an operation for an emergency.

Pseudohermaphrodite.—The essential organ of generation and that which must in the final analysis determine the sex, is the presence of the testicle in the man, and the ovary in a woman. The true hermaphrodite, says J. RIDDLE GOFFE (*Am. Jour. of Obstet.*, Dec., 1903), must possess both these organs. No case of unilateral hermaphroditism has ever been reported. The cases of the older writers usually fall under the bilateral. They are all of doubtful authenticity. An individual with functioning glands of both sexes provided with excretory ducts has never been discovered. The author reports the case of a 20-year-old woman. On examining the genitals an enlarged clitoris with prominent glans obtruded itself and became erectile on the slightest touch. It was surrounded with a corona of hair and surmounted on the mons veneris with a luxuriant tuft. The clitoris measured three inches in length and three and one half inches in circumference. The foreskin could be drawn forward on to the glans, but contracted strongly in erection. A narrow strip of mucous membrane ran along the free border of the frenum, as in cases of hypospadias. The clitoris was impervious and the meatus urinarius could not be discovered. Below the introitus was a broad perineum reaching to the anus. The vaginal opening took a Peaslee sound readily to the depth of 4½ inches, and the caliber of the canal seemed to enlarge at its distal end. Under bimanual manipulation with the finger in the rectum, no internal generative organs could be outlined except a cord-like extension from the upper end of the vagina. The clitoris was removed and the small vaginal opening was enlarged; the skin of the clitoris brought down and grafted upon the denuded vaginal surface. Several months later, the vagina easily admitted the ordinary bivalve speculum.

Ovarian Grafting.—The following are the results and conclusions of ROBT. T. MORRIS (*Am. Jour. of Obstet.*, Dec., 1903), obtained from experimental work on a series of rabbits: (1) When the ovaries are removed from an animal, and then replaced at some point near the original site, or even at distant points, the tendency is for the ovary to continue its function of developing ova and of furnishing its internal secretion. Such transplanted ova may continue to do normal work for an indefinite period. (2) When ovaries are removed from one animal and transplanted into another of the same kind which had its ovaries removed, the tendency is for the grafted ovary to undergo degeneration. The graft will continue to develop ova and furnish internal secretion, for several months in some instances, but at the end of a year the grafts are often found fatty and useless. It is to be assumed that the serum of one animal is destructive to the introduced tissues of another of the same sort. Several points of practical value have been arrived at from this experimental work, and may be applied to the work of to-day. If, for instance, in a case of pyosalpinx, one is obliged to remove the ovaries and oviducts en masse, as often occurs, one can place part of a fairly good ovary in a warm saline solution until the rest of the work is com-

pleted, and then graft this piece of ovary beneath the peritoneum at some point near its original site, before closing the abdomen. This may prevent premature menopause. This refers chiefly to grafting a piece of the woman's own ovary. With a piece of another woman's ovary, the patient may menstruate for several months and have the benefit of internal secretion. It may be possible for her to become pregnant before the graft is degenerative, but this has as yet occurred only in rabbits and very shortly after the grafts were introduced. In one patient who had congenital degeneration of the adnexa and who had never menstruated, menstruation was established by ovarian grafting and continued for nearly four years. The method employed by the author in grafting consists in putting a piece of one ovary into a pan of saline solution at a temperature of about 100° F. until the operation is completed. The segment of ovary is then inserted through a slit in the peritoneum, somewhere near its original site, in such a way that the raw surface of the ovary is subperitoneal, where it can be nourished by the lymph circulation until new capillaries are formed for its support. These are very rapidly formed. A part of the normal periphery of the ovary is allowed to protrude into the peritoneal cavity, so that the ova may escape and find their way into the oviducts in cases in which such a possibility exists. One or two fine catgut sutures serve to hold the graft in place.

Modern Theories of Eclampsia.—The old theories of a renal origin of eclampsia hardly fit into the present knowledge of this disorder, and many views have been advanced which make an intoxication with fetal elements possible. The earliest attempt to explain eclampsia in this direction, took for granted a direct poisoning of the system with placental tissue which readily finds its way into the material circulation. Experiments do not, however, bear out this theory, for the injection of placenta into pregnant animals of the same or different species is never followed by symptoms in any way suggestive of eclampsia. According to another theory every animal destroys its own placental emboli by means of a specific antibody, which is produced only too readily in excess and then acts as a poison. Subdural injections of this syncytiolysin have indeed set up eclamptic convulsions, but subcutaneous and intravenous administration is harmless. The following theory seems more plausible to E. WORMSER (Münch. med. Woch., Jan. 5, 1904): Poisonous proteid bodies are produced while placental tissue is dissolved in the maternal blood; these syncytiotoxins are neutralized under normal conditions, but lead to eclampsia if insufficient antitoxin is produced. If specific serum is allowed to act upon the placenta and the resulting emulsion injected into animals, it is very often possible to induce the typical symptom and, what is more important, the typical lesions of eclampsia. The author has repeated all the experiments which have led to the above theories, and can only record negative results. Even the precipitin reaction which is supposed to manifest itself by precipitation when specific serum is mixed with placental in a test-tube, could not be obtained. The portions of syncytium which had been treated for several hours had not lost their macroscopic or microscopic appearance, so that a specific action is at best doubtful.

Treatment of Puerperal Fever.—Questions concerning some of the more interesting of the disputed points relative to the treatment of puerperal infection were submitted to a number of distinguished gynecologists by the Internat. Med. Mag. (Nov., 1903). All agree concerning the advisability of emptying the uterus in the presence of symptoms of puerperal sepsis and of retained placenta. The focus of infection should, if

possible, be determined. If vaginal, disinfection by douches and local applications after removing sutures from closed lacerations, are in place. If uterine, a single, non-irritating douche is given in the absence of debris, in its presence, the sharp curette should be used, scraping only when the finger has felt decidua and placental tissue. The cavity is then irrigated with creolin or lysol and lightly packed with iodoform gauze. The douche, but not the curetting, may be repeated. Infection involving the appendages is treated surgically per vaginam, where possible. Constitutional treatment must assist the local. Hysterectomy is indicated for suppurative metritis or widespread infection of the broad ligaments if the general condition is fair and the diagnosis can be made, but this is not the rule. The operation must be performed early, before streptococci have invaded the blood-stream. Rubber gloves are used by most men in making examinations during labor and vaginal douching after labor has been abandoned by almost all. The opinions concerning formalin used intravenously are no longer enthusiastic; it seems to be not better than ordinary salt solution and may even do harm. For phlegmasia alba dolens, rest, elevation of the limb and some antiphlogistic dressing are in place.

THERAPEUTICS.

Sulphanilate of Soda in the Cure of Basedow's Disease.—KIRNBERGER, in *Gaz. Sicil. di Med.* (Nov., 26, 1903) advises the use of sulphanilate of soda in Basedow's disease, to counteract the auto-intoxication by the excessive production of iodine by the thyroid body. The following formula may be used:

℞ Acidi sulphanilici.....gr. 10 (℥ viii.)
Sodii carbonatis.....gr. 8.05 (℥ iiss.)
Apuæ destillatæ.....gr. 200.00 (℥ 3ss.)

Dose, 3 to 5 teaspoonfuls a day.

While little change on the hypertrophied thyroid has taken place, symptoms are much relieved by this treatment.

Radium in Ocular Therapeutics.—In the *Gaz. Sicil. di Med.* (Nov. 26, 1903), the following conclusions are made: (1) Radium in external application is a very powerful analgesic, especially for neuralgia, rheumatism, iridocyclitis, and the severe pains of inoperable cancer. (2) Application of radium can produce a rapid absorption in the interior of the eye, such as an old hemorrhage of the vitreous body, absorbed in ten days. (3) Certain interesting results are obtained in blepharitis. The results obtained from action of radio-active salt of radium, internally and externally, permit the hope that it will soon be possible to soothe gastric or intestinal pains of nervous origin from ulceration or from cancer.

Permanganate of Potassium in Morphine Poisoning.—The action of permanganate of potassium, the true chemical antidote of morphine, is explained by W. O. MOOR (Therap. Monatshft., Nov., 1903) as follows: If a certain amount of permanganate is added to an aqueous solution of albumin, a dark brown, homogenous fluid will result, which will precipitate as soon as morphine is added. On testing this precipitate for morphine, negative results are obtained, since the entire amount of alkaloid is oxidized. The same thing occurs in the system and it seems that the oxidized albumin can pass its oxygen over to the morphine just like the permanganate itself. In all cases of poisoning about half a gram should be given internally, but since the absorptive powers of the gastric mucosa are much reduced, it is absolutely essential to inject 10 to 15 c.cm. of a one-half per cent. solution. If introduced into the subcutaneous cellular tissue in different parts of the body, abscess formation will be avoided.

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THE RABBIT LOPE.

OF the manufacture of diseases, like the making of books, there is no end, and though the brunt of the output has hitherto been borne by the wise men of the East, it now seems that the West has scored sufficient points in the quality of their investigations to make good their shortcomings in regard to the mere quantities of their discoveries. We have had the golf shoulder, the baseball arm and the ping-pong ankle, the automobile scowl, and now, as a climax, we are brought face to face with the "rabbit lobe."

In regard to its etiology, it seems that the high price of beef, mutton, and what is known as "hog meat," in the vernacular of the localities in which the disease has appeared—which are situated somewhere between the Mississippi River and the setting sun—have led the frugal and shotgun-loving population to indulge too freely in a diet composed entirely—as far as meat is concerned—of jack-rabbits. These have been selling freely and in large quantities at the moderate sum of ten cents per rabbit, and have been considered somewhat in the light of a celestial manna, until the pronounced and decided symptoms, which are now attributed to their use as a food, appeared and were reported by Clarke in the Birmingham Ledger.

The first deviation from the normal, which appears to have been noticed and which is now considered pathognomonic of the Southern epidemics, in Raleigh, N. C., and Danville, Va., is a dilatation of the pupil, a dropping of the accommodation, and a peculiar and marked effacement of all expression from the countenance of the victim. A look of chastened idiocy, that seems midway between what was reported in the early nineties, as the "baby stare," and that mental condition, in which the patient insists on the decoration of the hair with straws and claims to belong to a royal family. This is followed by an erection and cropping out of the ears, and, in the male patient, by a twitching of the mustache hairs, while the female seems to be possessed of an increased mobility of the muscles of the lips, which, in the more advanced stages, leads to a perpetual labial quivering. Finally the characteristic movement, from which the disease takes its name appears, and the patient seems unable to avoid making sudden bounds into the air, which, says the report, is particularly marked when the sufferer is making unusual haste, such as "in endeavoring to catch a car or in dancing."

The symptoms subside rapidly on the substitution of other foods and the chief interest seems, from a scientific point, to lie in the fact of what there is in the rabbit that could have produced the disease. A liberal diet, on his part, of belladonna leaves, would account for the ocular symptoms, but the atropine contained in them would doubtless have killed him before he met his death at the hunter's hands. And even were this not so, it would not account for the assimilation by the patient, of a train of physical attributes, which up to this time have been considered characteristic of the *Lepus cuniculus* family.

As to the rabbit himself, he is doubtless a good deal of an unknown quantity, and the few things that in the past have been considered as fixed facts, have now, under the light of the researches of modern savants, become jangled harsh and out of tune. The hare that has for centuries been taken as the type of timidity has now, according to the "rabbit-editor" of the Washington Post, blossomed into a most blood-thirsty monster, that kills and worries dogs, and which has taken, by right of conquest, the place of bloodhounds in Wild West shows and in peripatetic Uncle Tom's Cabin troupes.

We hear, alas, no more of the roly-poly rab-

bits with their cunning little habits, but we are taught that they have more valor, even if less discretion, than Mississippi bears, and that they, in place of Bruin, should take the post of honor in future strenuous and executive hunting expeditions.

So of the former "Brer Rabbit" of our childhood days, little is left to us, even his left hind foot has lost its cunning, and the dark of the moon no longer finds the quiet graveyard an ambushade for his destruction. Nothing of his former glory is left, save, perhaps, his reputation for speed, in which (the jack-rabbit particularly) he has been long supposed to excel all living things. And even here, as a final blow, comes a story from Arizona that seems to rob poor Bunny of even that last record and leaves him distanced and defeated, unhonored, if not unsung.

It seems that a rancher, a typical man of the class, that loving his neighbor as himself, yet loves his neighbor's wife a little more than either, had ridden some thirty miles or more to an adjoining establishment, and had been welcomed, not wisely, perhaps, but too well, by the lonely chatelaine of the Western wilds. Later on, alarmed by the heavy throwing down on the piazza floor below, of the saddle of the unexpectedly returned wanderer, and remembering that in those regions a man's pistol was apt to be as quick as his temper, and as liable to go off, he folded his tent and quietly stole away. Dropping noiselessly from the window he sped away toward the rising dawn, across the grassy plain. Mile after mile of the prairie he traversed with head thrown back, with chest extended, breathing the deep inspirations of those who are trained to sprint. Some four miles on he overtook a jack-rabbit, who was scorching on ahead to a belated home. Scornfully he kicked him from his path, saying as he left him far behind, "Sonny, when you see a man that *can* run and *wants* to run, give him room, it's all he needs."

If this be true, we cannot say. Western papers are more apt to dress their facts in ulsters than in tights, but if it is, it is only one more proof of the supremacy of man over beast, the victory of a guilt-troubled mind over animated matter. There are few churches on the plains, and Sunday Schools do not abound. Men do not always read while they run, particularly when the contest is with jack-rabbits, and this does not seem to be a case where virtue had its own reward. In fact, the episode might answer

in the negative the question of the Poet of the Sierras: "Is civilization a failure, or is the Caucasian played out?"

PULMONARY SYPHILIS.

IN the midst of the reawakened interest in tuberculosis there is apparently a likelihood that physicians may forget or at least often lose sight of the fact that sometimes pulmonary syphilis simulates tuberculosis of the lung so closely as to make the differential diagnosis practically impossible except by the therapeutic test.

In a recent number of the *Practitioner* (Nov., 1903, p. 685) Dr. J. J. Perkins, one of the physicians to Brompton Hospital for Consumptives, in London, reviews the subject of pulmonary syphilis and calls attention to the fact that in recent years in English and American medical literature some striking cases of pulmonary syphilis, in which there eventually could be no doubt of the true nature of the disease, have been described.

One of the first and most characteristic of these cases was reported in the *MEDICAL NEWS* for August 30, last year. In this case the patient, a woman of about forty years, suffered from miscarriage and later developed cough and dyspnea with rapid loss of weight. In a few months she came down from 135 pounds to only 95 pounds in weight. There was considerable expectoration and though the sputum was examined at three different times by specialists no tubercle bacilli were found. In spite of this the disease was considered to be tuberculosis and the patient was advised to remove to the mountainous region of Southern New York. This advice was given by a prominent pulmonary specialist. She followed the advice, and her physician in the mountains, a man of large experience with tuberculous patients, confirmed the diagnosis of tuberculosis. She recovered somewhat, but as there were evidences of a cavity it was considered only a question of time until the fatal termination would come, and she was advised to return home. As she was suffering from a cutaneous eruption she consulted a dermatologist who recognized her skin lesions as of syphilitic origin. She was put on antisiphilitic treatment and not only did her cutaneous condition at once improve, but her pulmonary affection also. The cough gradually disappeared and she became practically cured.

In a more recent case the patient was a man who had suffered from a chancre some eight years before he came under observation. There had been cough with thick expectoration, some

fever and occasional hemorrhages extending over a period of two years, with a loss of thirty pounds in weight. Careful treatment directed to the supposed tuberculosis failed entirely of effect, but a liberal diet of milk with potassium iodide and mercury in suitable doses brought immediate amelioration of the pulmonary symptoms and ultimately entire relief. The signs of consolidation passed away leaving only slightly impaired resonance and an occasional râle.

Instances of this character show the necessity for the exercise of great care in the treatment of patients with a positive syphilitic history in whom there are pulmonary symptoms, especially if no tubercle bacilli can be found. This constitutes the only pathognomonic differential sign between the two conditions. Where a syphilitic patient has not been exposed to the contagion of tuberculosis, it is well to try the effects of antisyphilitic treatment even for pulmonary symptoms, since, if the pathological condition is specific it will not be long before decided improvement will be noticed. To leave the patient without syphilitic treatment is almost surely to commit him to the hopeless ravages of the venereal disease.

There is one consideration that must act as a warning, however, with regard to the employment of antisyphilitic remedies, unless there are good grounds for sufficient suspicion of the specific nature of the disease to justify it. It is well known that patients who are already tuberculous when they contract syphilis usually suffer from their specific disease very severely. To give such patients large doses of the iodides and mercury with the idea of relieving the pulmonary symptoms by these remedies is almost surely to invite a deterioration of the general condition, in which both affections will make sad ravages upon the constitution. Specific treatment must be used, of course, but with great care, and as far as possible without encouraging that tendency to dissolution of connective tissue which allows tuberculous processes in the lungs to spread in spite of nature's effort to wall them off by layers of this form of tissue.

The problem is indeed a serious one, but therefore all the more worthy of the earnest consideration of American medical men. Attention to the possibilities of these cases is needed if sad mistakes are to be avoided. There is more than a suspicion that such mistakes have in the past been responsible for a number of deaths in young subjects that might have been avoided.

VACCINATION ONCE MORE.

THERE are many places throughout this country where smallpox is reported. Until the end of winter the disease always increases. There is constant necessity therefore for physicians to insist on the advisability of vaccination and to make people feel how much of protection it affords, with very little inconvenience, to say nothing of suffering or danger, if done under proper circumstances, with due precautions. Notwithstanding the enormous number of vaccinations that have been done in the last few years there are still many who have not been vaccinated. We may say in passing that notwithstanding the very large number vaccinated recently there have been practically no fatalities and none at all in which some other factor besides the vaccination itself was not at work. Some recently recorded unconscious experiments on human beings, the victims being themselves the responsible experimenters, are reported from Chicago, and may very well be used in convincing those who still are unwilling to be vaccinated of how much this measure gives of assurance and protection against smallpox, and how much the absence of it lays the unvaccinated open to dangers that practically cannot be avoided in our large cities.

The bulletin of the Health Department of Chicago has the following paragraph from the medical inspector, who investigated the four cases of smallpox that were sent to the Chicago Isolation Hospital during the last week of last year:

"A man from Oswego, N. Y., visited friends upon his arrival in Chicago while he was in the early stage of smallpox. At the first house he visited there were two young ladies unvaccinated, though they are employed in a large downtown department store. Both are now in the hospital with smallpox, having contracted the disease from their Oswego friend. There was also an unvaccinated man at another house visited by this man and he, too, is now in the hospital with smallpox. The fourth case, an unvaccinated young man, traveled on the same car with the Oswego man and visited in the same neighborhood."

Needless to say this individual suffering from smallpox came in intimate contact during his travels in Chicago with many other persons besides those sent to the hospital. The only reason why there are not many more cases reported is that, fortunately, most of the other persons with whom he was brought in contact were vaccinated,

for there has been a very proper zeal for vaccination in Chicago in recent years. The inspector does very well, however, to add, and his expression is true for many other cities besides Chicago:

"There are still enough unvaccinated people in the city to fill the hospital with smallpox cases if they happen to come in contact with the contagion as these four victims did."

ECHOES AND NEWS.

NEW YORK.

Dr. M. J. Lewi has been appointed Associate Medical Director of the Security Trust and Life Insurance Company of Philadelphia. In addition to performing the medical functions indicated by his title, Dr. Lewi will assist Mr. Luper in the discharge of his multiplying duties as General Manager of the company. The doctor is well and favorably known to the medical world as Secretary of the New York State Board of Medical Examiners, and his life insurance experience includes a five years' service with the American Union Life Insurance Company as its Medical Director.

The Merging of Two Medical Journals.—Messrs. E. B. Treat & Co., the publishers of the *International Medical Magazine* and of *Archives of Pediatrics*, have concluded to merge the two journals. The publishers regret that they must discontinue the *Magazine*, and extend to Dr. Reed their appreciation of his editorial labors.

Promotion of Dr. Gies.—At the last meeting of the trustees of Columbia University Dr. William J. Gies, adjunct professor of physiological chemistry, was assigned to a seat in the medical faculty.

Dr. P. B. Hawk, who was assistant in the department for two years, and who received the degree of Ph.D. from Columbia last June, has accepted the position of demonstrator of physiological chemistry in the University of Pennsylvania. Dr. E. R. Posner has succeeded him.

The Late Drs. Fridenberg and Ruggles.—At a meeting of the Medical Association of the Greater City of New York, held February 8, 1904, the following reports of committees were received and adopted: The Committee appointed to prepare a minute in regard to the death of Dr. Edward Fridenberg, late fellow and associate and one of the Charter Members of this Association, respectfully reports as follows: Dr. Edward Fridenberg, whose death occurred on December 9, 1903, was born on August 16, 1857. He received his primary education in private schools in New York City and abroad. In 1877 he was graduated from the College of Physicians and Surgeons, as an honor man of the class. After serving as interne in the Mount Sinai Hospital and the Ophthalmic and Aural Institute, he began general practice in New York City. His predilections being for eye and ear work, he went to Europe in 1886 and devoted two years to further special study, after which he established himself as a specialist in these branches. He was closely identified with the early growth of the Harlem Medical Association, and was twice President of that Society. For many years he was Ophthalmologist to the German Dispensary, and since 1886 he was attending Ophthalmologist and Aural Surgeon to the German Hospital. He was also Consulting Surgeon to the Hebrew Orphan Asylum, Surgeon to the Harlem Dis-

pensary, and at one time Surgeon to the Randall's Island and Harlem Hospitals. As an active member of many local and national associations he was widely known. To those who knew Dr. Fridenberg closely he will always be remembered as a man of erudition and culture, warmly interested in all socio-economic questions, and always giving full vent to his sympathy for the oppressed individual, class or nation. He was generous and magnanimous in spirit and action, and many a young colleague will never forget the support and encouragement which he received at his hands at a time when it was most needed. (Signed) George W. Jacoby, M.D., Samuel M. Brickner, M.D., *Committee*.

The totally unexpected death, on December 27 last, of the honored and lamented Treasurer, Dr. Augustus D. Ruggles, was a great shock to all the Fellows of this Association. Dr. Ruggles was a member of a well-known family of repute in the Revolutionary annals of the country, and at a later period closely identified with the interests of the city of New York. He was proud of having been a graduate of the Medical Department of the University of Pennsylvania, the oldest and still one of the foremost of the medical colleges of America, and throughout his career he ever regarded his Alma Mater with feelings of veneration and loving devotion. Receiving his degree during the early part of the Civil War, his patriotic ardor prompted him to seek a position in the military service, and in the years that followed he won distinction as a surgeon, more especially in the campaigns of the Army of the Potomac, where he nobly sacrificed his health in the performance of duty. The greater part of his professional life was passed in this city, and for many years he did laborious and conscientious work as a general practitioner. In the medical history of New York, Dr. Ruggles will be best remembered as an earnest worker in professional societies. His faithfulness, his zeal, his energy, and his indefatigable industry in this particular field have rarely been equaled, and never surpassed. He was one of the early members of the New York State and County Medical Associations, in the latter of which he was honored with the Vice-Presidency, and both these bodies were largely indebted to him for their success. In later years he was one of the organizers and incorporators of the Medical Association of the Greater City of New York, and also its Treasurer from the beginning; and there are few of us who do not realize that it was in a very great measure due to his untiring efforts that this Society has been placed upon a lasting foundation and has started upon a career which promises a brilliant future. He had not a few devoted friends, and his genial disposition and pleasing address made him a favorite in a very wide circle. It is probable that no one has yet lived who had a more extensive personal acquaintance than he among the medical profession of New York City and its vicinity. In taking note of the death of Dr. Ruggles this Association desires to record a sense of the profound sorrow occasioned by his irreparable loss, and to give expression to its sincere appreciation of the faithfulness and earnestness of his self-sacrificing labors in its behalf. (Signed) John H. Hinton, M.D., P. Brynberg Porter, M.D., Reynold Webb Wilcox, M.D., *Committee*.

PHILADELPHIA.

Phipps Institute Lecture.—The next lecture in the international course on Tuberculosis under the auspices of the Henry Phipps Institute, will be given

by Dr. Herman M. Biggs, Chief of the Department of Health in New York, on Monday evening, February 15, the subject being "The Administrative Control of Tuberculosis." The profession in general is cordially invited to attend this lecture.

Dinner to Dr. Chandler.—Many of the prominent physicians of this city, Delaware and Maryland gave a dinner at the Walton, February 4, in honor of Dr. Joseph H. Chandler, of Centreville, Del., president of the Joseph H. Chandler Medical Club of that State. Toasts were responded to by Drs. Hearn, Chandler, Montgomery and others, Dr. H. A. Hare acting as toastmaster.

Medical Standard Too Low.—Dr. Henry Beates, Jr., President of the State Board of Medical Examiners, is quoted as saying that the reason for so many men failing to pass the examination for inspectorships under the Bureau of Health, as well as those before the State Board, is that the standard of admission to the medical colleges is too low. Before the State Board at its last meeting forty-two per cent. of the candidates failed to attain a passing mark. Had Dr. Beates' own vote sufficed for that purpose, eighty per cent. would have been rejected.

Careless Physicians to Be Punished.—The Board of Health is making examples of those physicians who send victims of contagious diseases to the City Hall or to the Municipal Hospital in carriages or even in street cars. A negro physician has been fined \$10 and costs for sending a case of smallpox to the department at the City Hall. Three other physicians have been summoned to explain their failure to report cases of contagious disease.

Vaccination at Philadelphia Hospital.—Visitors to the Philadelphia Hospital are now required to show satisfactory vaccination scars or undergo vaccination before they are permitted to enter the wards of that institution. Inmates of the place are also required to be vaccinated before visiting relatives in the city. This rule is in pursuance of the endeavor to prevent smallpox breaking out among the 5,000 inmates of the institution.

Lectures to School Teachers.—Under the joint auspices of the Board of Education and the Department of Health, a course of lectures on "School Hygiene" to the teachers of the public schools will be opened on February 23. Dr. S. Weir Mitchell will open the course with remarks on the nervous diseases of children. The course includes seven lectures, one of which will be held each week. The lecturers to follow Dr. Mitchell are Drs. H. A. Hare, G. E. DeSchweinitz, H. A. Wilson, Jay F. Schamberg, and D. D. Smith. All have volunteered their services. The course is in the nature of a preliminary to the establishment of medical inspection of schools.

Chronic Cyanotic Polycythemia.—A case of this somewhat rare clinical entity was reported at the Section on Medicine of the College of Physicians, February 8, by Dr. W. E. Robertson, the patient being exhibited. The subject is a Hebrew, fifty years of age. He is one of fourteen children, eleven of whom are dead from causes unknown. The patient had never before been ill, not even having the diseases of childhood. He is a moderate drinker and has not followed any laborious occupation. Two years ago he began to suffer from indigestion and constipation, the latter at times amounting to fecal impaction. Pain was then felt in the left hypochondrium. When first seen three months ago the spleen extended three or four fingers' breadth below the costal margin. Since then it has increased mark-

edly in size, now reaching almost to Poupart's ligament. The patient has no fever and no vomiting. The chief complaints are headache and pain on the left side of the body. Cyanosis varies from time to time. It is most marked on the left side of the body. The blood count shows from 9,680,000 to 9,950,000 erythrocytes, 15,000 to 23,000 leucocytes and hemoglobin of 114 to 116 per cent. The size and shape of the red cells seem to be normal. Blood obtained from puncture of the spleen contained no nucleated red cells. The question of splenectomy in this case is being very seriously considered.

To Extend Crusade Against Tuberculosis.—Preliminary announcement of a far-reaching crusade against tuberculosis has been made by Director Martin who is acting in conjunction with Mayor Weaver. Registration of cases of the disease is to be the first step in the plan as outlined. Added to this will be the removal of infected persons to a camp to be established in a mountainous region of the state. The cooperation of the state authorities is to be enlisted as the camp would at first have to be sustained by grants, though it is believed that it could be made self-supporting later on. The scheme as outlined will take considerable time to put into working shape, but it will be pushed as fast as the necessary aid can be secured.

CHICAGO.

Report of the Alexian Brothers' Hospital.—According to the report of this institution, during 1903 the hospital cared for 3,062 patients; 1,932 were discharged cured, 488 discharged improved, and 91 discharged unimproved. The deaths of the year numbered 333. Of these, 126 were in a dying condition when brought to the institution.

No More Expectoration on Sidewalks.—According to the line of campaign recently adopted by the Progressive Health Club, composed entirely of women, there will be no more expectoration on sidewalks, in public places, or vehicles. The members of this club urge the wide publicity of the anti-expectoration ordinance, aided by the press and printed cards, the latter to be brief and forcible. Prompt arrest of flagrant offenders. Alderman Goldzier, who secured the passage of the anti-expectoration ordinance three years ago, which, by the way, has never been enforced, has drafted a formal memorial to Mayor Harrison and the City Council, as follows: "(1) The police and health departments shall be instructed to cause the arrest of persons who flagrantly and offensively violate the ordinance by expectorating on sidewalks, etc. We are fully aware that it is not possible to arrest every offender, but an occasional arrest would call the attention of the public to the ordinance and the nuisance. (2) The present printed card in use by the health department is prolix and weak. (3) These notices to be given proprietors of halls, etc., and posted on patrol boxes and other practical and conspicuous places. An ordinance to provide for their posting in public vehicles." The Committee of the Progressive Health Club was instructed to again call on the transportation companies in the interest of cleaner cars and to secure cooperation from the Board of Education in bringing to the attention of school children the evil of the spitting habit, that they might take the lesson to their homes.

Hospitals Must Comply with Building Ordinance.—The Superintendents of 13 hospitals have been notified by the Building Commissioner not to receive any new patients until certain specified

changes, looking to the safety of patients in case of fire, have been made.

Factors That Influence Pneumonia.—Dr. Wm. K. Jaques read a paper on this subject before the Chicago Medical Society. Among other things, he said that pneumonia is a disease of impaired vitality. Loss of immunity is usually the last factor in causing the disease. When any portion of the lung tissue loses its resistance, one or more of several organisms may cause pneumonia if they are present and are capable of taking advantage of the loss of immunity. The triumphs of medical science in other diseases tend to lengthen life and increase that class of individuals who die of old age. In every community there are people who have passed the meridian of life in seeming fair health, but crippled kidneys, impaired hearts, cirrhotic livers or sclerotic arteries prove they have no resistance when attacked by pneumonia. Because of these complications, there can be no definite and unvarying course in the treatment of the disease. Each case presents its own problems. But there are several cardinal points upon which every physician should have a well matured line of action. These are control of temperature, adequate supply of oxygen, proper administration of nourishment, and attention to elimination. If the microscope reveals the presence of the *Diplococcus lanceolatus* in sufficient numbers to indicate that it is the chief bacterial factor in the inflammation, the prompt administration of pneumococcus antitoxin is a rational procedure. This should be done with the appreciation of the minor part the pneumotoxin may play in the disease. The proper administration of remedies should not be discouraged, but they should be given with a clear understanding that life depends upon the resisting metabolism of the cells, and that medicines are given to increase this. In considering prophylaxis, the most important point to remember is that pneumonia is an infectious disease, and that the infection should be destroyed as near its source (the patient) as possible. The fact that many pneumococcic cases occur where there is a tuberculous lesion makes the discharges from such patients doubly dangerous. Heat is the safest method of disinfection. Boil or burn as many of the infected articles as possible. Furniture, which cannot be treated in this way, should be thoroughly cleansed with soap and water, and then disinfected with formaldehyde. It should be remembered, in the use of this gas, that dried pneumonia sputa, and the horny resisting tubercle bacilli can be but little affected by it in the way it is usually employed for disinfection. Cleanliness is the first and best half of disinfection. Burn, boil and scrub; lastly, disinfect.

Treatment of Burns and Scalds.—Dr. Charles MacLellan read a paper on this subject at the Chicago Medical Society. The clothing should be removed by cutting with sharp scissors, never by pulling or tearing. The washing should be done, if necessary, by effusion of rain or distilled warm water, in which a large quantity of bicarbonate of soda has been dissolved. The blisters should be opened and the evacuated contents absorbed by soft cotton or sponge. As a blistered cuticle never reunites with the cutis, and is not pervious to serum, it should be removed at once and not left to rest on the inflamed cutis after the fluid is discharged, for it must exercise a deleterious influence on the abraded surface, even to endangering the life of the sufferer. The means of supplying fresh cuticle is

vested in the cutis, and is begun the moment the injury has been received. The pain in extensive burns is less than is generally supposed, not at all so acute as in injuries of equal extent from other causes and frequently gives little warning to the surgeon in cases where the life is in danger. The surgeon should be careful of albuminuria, pneumonia, meningitis, or intestinal ulcer. The usual local remedies are equal parts of linseed oil and lime water, olive oil, lard oil, dry cotton, glycerin, carbolic acid in solution, starch, gum tragacanth, collodion, etc. These, in the opinion of the essayist, are too adhesive. All detached dead matter should be removed with the dressings once daily, and the old injunction, change the dressing as seldom as possible, may be disregarded. He has in his own practice dismissed all dressings except castor oil in the treatment of scalds and burns of whatever class. In the use of castor oil the author has been pleased with the results, as compared with the former use of the time-honored carron oil, powders or varnishes. It requires a high temperature to keep the parts free from pain, and cotton-wool should thickly cover all dressings in the early treatment. The manner of applying the dressings of castor oil is first to have the parts washed as well as may be. The oil is then poured over the injured surface freely and distributed evenly, with a fine varnish brush, say of an inch and one-half width. Pieces of plain or medicated gauze cut into the desired shape and having previously been placed in a bath of castor oil, are applied over the wound and brushed to smoothness. More oil may then be brushed in to saturate thoroughly, and the gauze then covered with cotton-wool chiefly. The nurse should be instructed to remove the wool at intervals sufficiently close to prevent drying or adhesion, and, having the oil in a vessel at hand, dip the brush into it and paint over the gauze to full saturation, replacing the wool. The removal of the wool and the brushing will require to be done much more frequently in the early days of the treatment, when the heat of the inflamed parts is so great, than when the case has advanced.

Treatment of Trigeminal Neuralgia by Injections of Osmic Acid.—Dr. John B. Murphy reports the case of a man of seventy-six years, in poor physical condition, who had suffered from neuralgic pains on the right side of the face for thirteen years, but they were not very severe or constant until four years ago. On examination slight tenderness was found over the supra- and infraorbital divisions at their exits. No areas of hyperesthesia or anesthesia, and no evidences of tumor or inflammation along the course of either nerve. The proper treatment to employ was puzzling, on account of the patient's age and poor physical condition. It was finally determined to resort to the method used by Bennett, with most gratifying results, in ten cases, namely, intraneural injection of osmic acid solution. The nerve is exposed through a small incision about one-half inch in length, over the supraorbital notch, the incision being parallel with the eyebrow; the incision should be through the mucosa of the mouth or the infraorbital and mental branches. The nerve is elevated by a blunt hook and from five to ten minims of a fresh 1.5 per cent. solution of osmic acid injected directly into its substance and into the foramen. An ordinary hypodermic syringe and fine needle are used, and the solution injected in several different places to be sure every fiber was reached. A small amount was then injected between

the nerve and its sheath, in its bony canal. During the injection a small pledget of cotton is held around the needle, to absorb the excess of solution. Whenever this comes in contact with the blood or soft parts, immediate blackening results. The action of the acid on the nerve endings in the wound is probably beneficial, so a small amount should be allowed to come in contact with them. The incision is closed with horsehair and catgut, and primary union is not interfered with. The author's case was operated on under ether, though local anesthesia is better for the majority. The operation lasted only some twenty minutes, and when last heard from, Dec. 3, 1903, there had been no return of pain. The modus operandi of the procedure is not definitely understood at present, according to Murphy. The acid acts in one of two ways, or possibly in both; first, by producing a degeneration of the nerve on the proximal side toward the ganglion; or, second, by causing local destruction of the nerve and its endings. The former seems to the author to be more likely. He has now used it on seven cases of trifacial neuralgia, and all have been completely relieved. There is a total loss of sensation in the face over the areas supplied by them, and that anesthesia has existed up to the present time. The masseter and temporal muscles, however, were not paralyzed in any of the cases as far as he has been able to determine, indicating that the degeneration had not ascended on the nerve branches. He used it in one case of neuralgia of the arm, following forearm amputation. Patient's pain was symptomatically located in the palm and wrist of the amputated hand. The injection was made in the three divisions of the brachial plexus, solution 2 per cent., into the trunks for a full inch of the nerve. There was a partial paralysis of the muscles of the arm. The sensation was very much altered at once, and while the patient had suffered from the pain for about ten years, and had had a number of operations of nerve resection, all without relief, the osmic acid produced a change in the location and character of the pain, but it is not sufficiently relieved to call it at all satisfactory, and ten weeks now have elapsed since the operation. In the animal experiments, with injection into motor nerves, permanent paralysis followed. It should, therefore, not be used in neuralgias of motor nerves.

CANADA.

Personal.—Dr. J. W. Daniel, a prominent and popular physician of St. John, N. B., has been chosen to contest that constituency in the pending by-election for the Dominion House of Commons. He is standing in the Liberal-Conservative interest.

Dr. A. J. Richer, secretary of the Montreal League for the Prevention and Cure of Tuberculosis, has returned to that city after an extensive trip to the United States, where he has been obtaining information as to the work of such organizations; studying methods in use in fighting tuberculosis; plans for sanatoria and details of the work. He also attended the Tuberculosis Exposition at Baltimore on January 25, and the meeting of the Phthisis-Therapists of North America, on January 28. At the next regular meeting of the Montreal League, Dr. Richer will give an account of his observations.

McGill Medical Society Celebrates Anniversary.—The Medical Society of McGill University celebrated its twenty-fifth anniversary on the evening of February third, with the Hon. President, Dr. W. F. Hamilton, presiding. This Society was formed twenty-

five years ago with Dr. Wm. Osler as its first president and Dr. F. J. Shepherd, as first vice-president. A feature of the evening's celebration was a debate on "Resolved, That Athletics Interfere with the Best Physical and Mental Development of the Students." The decision was awarded by the judges, Drs. C. F. Martin, R. Tait McKenzie and D. D. McTaggart, in favor of the negative, as in their opinion athletics did not signify sports as they are carried on in most modern universities.

Winnipeg Medical Association.—At the annual meeting of the Winnipeg Medical Association, Dr. McArthur was elected president; Dr. Popham, first vice-president; Dr. Gordon Bell, second vice-president; Dr. Davidson, secretary, and Drs. McKenty, Beatty, Rogers and Crawford, councillors.

Ontario Physicians and the New Assessment Act.—The Ontario Government proposes to make a radical change at the present session of the legislature with regard to assessments, and as the proposed measure discriminates against the physicians of the Province they are up in arms against the measure. At present physicians in the cities, towns and incorporated villages pay taxes on excess of income over \$700; and it is proposed to do away with income tax entirely and substitute therefor a "business" tax. Under this new law a physician owning his own property will have to pay his regular assessment tax on property and in addition a "business" tax on half the assessed value of said property. The new business tax will bear especially hard on the young practitioner and the old practitioner in the cities, as in the former instance, as it takes a young man some years to accumulate an income, he is entirely free under the present law from taxation until such times as he is making more than \$700 per annum, and in the case of the old practitioner, who has partially retired from active practice, with very little of this world's goods, but will have to pay, not in proportion to his income but on 50 per cent. of the assessed value of the house he owns or rents.

To Train Ontario Teachers in Hygiene.—A medical conference which may have far-reaching results was held in Toronto last week at the instance of the Minister of Education, as the first step in the investigation of school hygiene by the Ontario Board of Health. One result of the conference will likely be the formation of a medical section to take part in the annual meeting of the Ontario Teacher's Convention. Dr. P. H. Bryce, formerly secretary of the Ontario Board of Health, stated that as a result of medical science in Ontario, the deaths in this province were but one-third what they were twenty years ago. Among others who contributed to the meeting were Dr. Charles Sheard, Medical Health Officer of Toronto, and Dr. C. A. Hodgetts, Secretary of the Board of Health, the latter of whom advocated compulsory drill for school boys as the basis for men trained for the militia.

GENERAL.

Ingersoll Lecture.—This lecture will be delivered this year by Dr. William Osler, of the Johns Hopkins Medical School, of Baltimore, Md. The subject will be "Science and Immortality." Further announcements later.

Examinations for Army Medical Service.—The examination of applicants for appointment as Assistant Surgeon in the United States Army will be resumed in Washington immediately after the close of the present session of the Army Medical School; it will embrace the full examination (as heretofore), at the

conclusion of which those found qualified will be commissioned. Full information as to the requisite qualifications for appearance for examination, method of application, nature and scope of examination, etc., may be obtained upon application to the Surgeon General, U. S. Army, Washington, D. C. The examining board will probably reassemble about the middle of April next, and those desiring to present themselves before the board should make application at once. Applicants are restricted in age to thirty years, and one year's hospital experience or its equivalent in private practice is required.

Congress of Polish Physicians.—The Tenth Quadrennial Congress of the Polish Physicians and Scientists will be held this year in Lemberg, Austria, July 20-24. Prof. E. Machek is the chairman of the committee of arrangements, and Prof. W. Sieradzki, secretary. Dr. Francis E. Fronczak, of Buffalo, N. Y., is the representative of the committee for the United States.

Dr. Senn Going to the War.—It is reported that Dr. Nicholas Senn, who was ranking Surgeon-General during the Spanish-American War, wants Chicago to give him \$100,000 at once, in order that he may equip a party of twenty-five physicians, nurses and orderlies to go to Japan for service at the front.

Flies and Typhoid.—Prof. Herbert E. Smith, dean of the Yale medical school and also State Chemist, and Edward Mahl, president of the Hartford Board of Health, in the official report of their investigation of the origin of the recent epidemic of typhoid fever at the New Haven county jail, said that flies carried the typhoid bacilli from dwelling houses on one of the streets that skirt the jail premises and where there were several cases of typhoid at the time. They say the germ-bearing flies entered the open jail windows and deposited the bacilli on the food in the kitchen. Seven of the twenty-one jail patients who had typhoid died.

Mortality from Anesthesia in England.—The annual returns of the British registrar general show a steady increase of mortality from anesthesia since 1863. In 1900 there were 140 deaths registered as due to anesthetics. According to Dr. A. D. Waller, (F.R.S.), of the University of London, this is an entirely unnecessary price to pay for the boon of anesthesia, as the chief reason of its payment is ignorance of the most elementary principles of the subject. Dr. Waller believes that deaths from chloroform (the popular anesthetic in England), are due simply to a too great concentration of the inhaled vapor. Using a pump invented by Dr. Dubois, of Lyons, in anesthetizing animals, Dr. Waller has never lost one from chloroform among the thousands operated on. The pump has already been tried to a limited extent on human beings, with entirely satisfactory results. The best percentage of chloroform for anesthesia is between one and two per cent.; there is practically no danger from such a mixture. This can be accurately maintained by means of the Dubois pump. In many ways chloroform is preferable to ether as an anesthetic, and if it could be rendered as safe as the latter, might largely replace it in this country.

Radium Exhibit at St. Louis Exposition.—Dr. George F. Kunz, special agent of the United States Geological Survey, has been appointed commissioner of the radium exhibit at the St. Louis Exposition, and has been authorized to prepare and procure material therefor, comprising radioactive substances

of all kinds, and also exhibits to illustrate the action of radium compounds, ultraviolet light, and Roentgen rays upon mineral and chemical substances. This exhibit is to be made by the United States Geological Survey, in the United States Building. There will be a second exhibit of radium and radioactive substances in the Mines Building.

Typhoid Pre-eminence.—The people of Pittsburg, says the *New York Times*, are not at all proud of the fact that for the moment their city takes first rank among American municipalities for its high typhoid death rate and has held it for many years. The *Pittsburg Dispatch* says: "A comparative list of typhoid mortality of all cities in the United States of over 30,000 population for the years 1888-1891, inclusive, shows Pittsburg to be at the head of the list for that period, and Allegheny standing fourth. The only other two cities showing as great a mortality as that of Pittsburg in this table were Lowell and Lawrence, which have since applied the remedy. The census of 1880 showed the typhoid fever rate per 10,000 population to be greater in Pittsburg than in any other city in the United States, Nashville being then a close second. These statistics leave no doubt of the fact that Pittsburg has for a quarter of a century suffered more from typhoid than any other city in the country. We are not aware of any statistics of districts outside of cities. But as to the undesirable pre-eminence of our city in that respect the figures remove all question. The latest data obtainable as to the typhoid situation in Pittsburg and Allegheny showed 3,299 cases and 483 deaths in 1903. This for a population of less than 322,000 should lead to something more than a newspaper discussion of the possible or probable reasons for what would seem to be a continuing epidemic. Why is it that public opinion does not focus in demand sufficiently insistent to command the attention and compel the obedience of the politicians for an expert investigation of the whole subject? The cost to the people of Pittsburg involved in the toleration of such an amount of preventable disease is many times greater than that of providing remedies which would make typhoid exceptional. Doubtless the trouble begins with the city's water supply, but it does not end there. No doubt a large proportion of the cases are due to secondary infection, which indicates a lax administration of the city's health ordinances. That the professional politicians and office holders do not initiate the reforms needed is not surprising; that the people of Pittsburg do not demand them may properly be so considered."

OBITUARY.

Dr. JOHN R. HINKSON died at his home, 544 Greenpoint avenue, Blissville, L. I., Feb. 5. He had been sick only one day. Dr. Hinkson was forty-eight years old. He was a graduate of the Dublin (Ireland) Medical College. At one time he was a professor of surgery in the Bellevue Medical College. Fifteen years ago he settled in the Blissville section of Long Island City, and had since practised there.

Dr. JOSEPH G. ROONEY, of West Hoboken, died Feb. 4, in St. Mary's Hospital, Hoboken. His death was the result of exposure on the night of Jan. 18, when he attended a number of firemen who had been injured at a fire on Jersey City Heights. His hands were badly frostbitten, and subsequently gangrene set in, the progress of which it was found impossible to stop.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, January 23.

THE HEALTH OF LONDON—THE ETIOLOGY OF CANCER—
CANCER CURES—PROPOSED STERILIZATION OF DEGENERATES.

MR. SHIRLEY MURPHY, the Medical Officer of Health for the County of London, in his report which has just been issued, states that the death rate in London from all causes per 1,000 living persons was in 1902 only 17.2. The total population estimated to the middle of that year was 4,579,110. This is the lowest rate ever recorded of our metropolis with the exception of that for 1901, which was 17.1. The health of London, judged by its general death rate, has steadily improved since the present system of registration has been in force and the figures for the last ten or fifteen years compare favorably with those for any equal series of years preceding them. Rightly to estimate the value of these figures, however, it has to be remembered that there are several contributory causes of the low death rate. One is that many invalids leave the *fumum strepitumque* of the capital to die in peace in quiet places in the country or by the sea. Another factor to be taken into account is that the population of London is constantly being replenished and its average of health raised by the influx of sturdy immigrants from the rural districts. Statistics have been collected which seem to show that a family of pure-bred Londoners tends to die out in the third generation. Without the constant addition of fresh healthy blood from the country, therefore, our population would be in danger of dying out. It is a sign of ominous import, however, that the birth rate has decreased coincidentally with the death rate. The number of births registered in the area over which the London County Council holds administrative sway in 1902 was 132,810, giving a rate of 28.5 per 1,000. This is the lowest birth rate recorded in London since the institution of civil registration. On the other hand there was a slight increase in the number of marriages in 1902, the number recorded being 40,817, giving an annual rate per 1,000 of 17.8, as against one of 17.6 in 1901.

During 1902 cancer claimed no fewer than 4,630 victims in London alone. It is not surprising, therefore, that the causation of that growing scourge is decidedly the pathological question of the day here. The results of a careful study of the subject from the purely biological point of view by Professor Farmer, a leading botanist and two zoologists, Messrs. Moore and Walker of the Royal College of Science, were summarized in a previous letter. These results have since been confirmed in the main by Dr. E. F. Bashford, Director of the Laboratories of the Cancer Research Fund, and his assistant, Dr. J. A. Murray. In a paper presented by them to the Royal Society on January 21, they say that a comparative study of the processes of cell-division in indifferent forms of carcinoma and sarcoma occurring in animals yield complete confirmation of the discovery by Farmer, Moore and Walker, of the special and very characteristic forms of cell metamorphosis and division which, previous to their observations on cancer in man, had been accepted as peculiar to the normal reproductive tissues. Drs. Bashford and Murray point out that the transmission of malignant new growths has never been effected from man to animals, or from one animal to another of a different species; but, by the successful experimental transmission of cancer from one animal to another of the same species, it has been found

that the tumors which develop are direct genealogical descendants of the cells produced. These conclusions confirm those already obtained by Jensen, of Copenhagen. Artificial transplantation differs from the secondary growths of cancer only in that the latter occur naturally from one site to another in the same individual, while the former is artificially effected from one individual to another. The process is in no sense an infection, for the tissues of the new host are merely the soil in which the transplanted tissue grows, and do not themselves become cancerous. The phenomena of cell division, indicating a similarity to the normal reproductive tissues, may help to explain the nature of this great power of multiplication, but leave the problem of the origin of cancer practically untouched. They give, however, important indications of the character of the processes on the elucidation of which the solution of the question depends. The wide zoological distribution of malignant new growths, which have been found in all classes of vertebrates down to the lowest, indicate that the cause of cancer is to be sought in a disturbance of those phenomena of reproduction and cell life which are common to the forms in which it occurs. If the observations of Farmer, Moore and Walker are finally proved to be correct, it will be established that a cancerous growth in man is precisely similar to the abnormal production of prothallial tissue on the fronds of a fern—in other words, that the onset of the disease in the human being is indirectly due to some of those as yet imperfectly understood causes which like the tying down of the frond of a fern, induce the normal tissue of the body to enter on the reproductive or "reduced" phase of its life cycle. It is pointed out that the new discovery, if established, may open up a large field of possibilities in regard to cure. It is known that the processes involved are in some cases, as in ferns, already under partial, if not complete control; and from this it may be inferred that the cure or arrest of the process in the human subject is equally possible. At the present stage of the inquiry it would be too much to say that the Sphinx-riddle of cancer has found its *Œdipus*. But it is permissible to say that the work of Farmer, Moore and Walker is considered by some highly competent judges here to be the greatest step yet made toward a solution.

In the meantime the search for a "cure" is being actively pursued in other directions, but it must sadly be confessed that so far the paths followed by different explorers have led nowhere. A couple of months ago we were all somewhat excited by reports of a wonderful discovery made in Germany. It was said that one Schmidt, of Cologne, had not only run to earth but had succeeded in cultivating the elusive parasite of cancer. Sterile cultures of the organism injected into cancerous tumors were said to produce a local selective reaction. After the reaction had passed off, and the process had been repeated several times, it was alleged that the growth, metastatic deposits and infected glands underwent fibrous degeneration. An English practitioner brought the "discovery" to the knowledge of the profession in this country, but the details of the method of preparing the therapeutic serum were kept secret. Schmidt who promised to reveal everything to the Berlin Medical Society has, as far as I am aware, not yet done so. His serum has been tried here under his own supervision on several cases in the Middlesex Hospital without any appreciable result. At a recent meeting of one of the Divisions of the British Medical Association Mr. D'Arcy Power, of St. Bartholomew's Hospital presented a record of three cases—one of cancer of the breast, one of epithelioma of the tongue, one of malignant growth in the neck—treated by Schmidt's

method. In all the cases an operation had been performed not long before. Mr. Power's conclusions are (1) that there is no doubt that a reaction takes place after the injection of Schmidt's serum. The temperature rises and with it the pulse, but the respirations as a rule are not affected. It cannot, however, be said with accuracy that the reaction is specific, as is shown by the fact that in the case which showed the most typical reaction, subsequent examination of the tissues failed to detect any malignant disease. (2) The local effect upon the tumor was shown in each case, for the breast in the first case and the malignant masses in the other two cases became inflamed and reddened as the result of the injection. Here, again, Mr. Power could not satisfy himself that the serum acted by selection upon malignant tissues only. It seemed to him to intensify any pre-existing inflammation. (3) The treatment was certainly painful apart from the succession of hypodermic injections. Lastly, malignant disease progressed while the injections were being given. Mr. Power fears, therefore, that the method at present is of no service either from a prophylactic, diagnostic, or curative standpoint.

The name of Dr. Robert Reid Rentoul, of Liverpool, is well-known to the readers of the medical journals in this country as for many years he was one of the foremost in the small but active body who regard themselves as reformers, but who are regarded by most people as bores. His persistence as an agitator was rewarded a few years ago by his election as one of the Direct Representatives of the English profession on the General Medical Council. His career there was brief and inglorious. One day he suddenly resigned, possibly because he felt himself to be a failure as a medical legislator. Since that episode, he has been comparatively quiet. Quite recently he has come before the world with a booklet bearing the sensational title "Proposed Sterilization of Certain Mental and Physical Degenerates." Deeply impressed by "the appalling state of physical and moral degeneracy now existing in this country" he has set himself to find a remedy. He points out that in the ten years 1893-1902, no fewer than 73,773 lunatics in England and Wales were discharged as "recovered." In the eight years 1895-1903, 8,933 lunatics were discharged as "recovered" from the asylums under the London County Council; of this latter number 2,285 were readmitted, 1,119 of them within one year of their discharge. "Is it right," asks Dr. Rentoul, "is it just to others that so large a proportion of 'recovered' persons should be permitted to return to ordinary life, there to beget a tainted offspring?" "We might," he says, "and with less danger, send out among the public persons cured of smallpox or plague without having first disinfected their clothes, as release 73,773 persons from asylums as 'recovered' to either resume or enter into conjugal relations." The remedy suggested is artificial sterilization. The treatment is to be applied not only to 'recovered' lunatics, but comprehensively to sufferers from leprosy, cancer, epilepsy, idiots, imbeciles, cretins, weak-minded persons under restraint, persons with advanced organic disease of the heart, lungs, kidneys, "or, in fact, any specific disease liable to be passed from parent to offspring." Prostitutes and sexual degenerates guilty of "crimes against good morals" are to be similarly dealt with; "a surgical, not the present legal, punishment is required." Tramps, confirmed criminals, the victims of venereal disease, and even "backward," "dull" and "weak-minded" children are for the public good, to be made incapable of propagating their species. The operation proposed for this purpose is ligature of excision of about two inches of the vasa deferentia in the male, or of the Fallopian tubes in the

female. It must be done of course under the sanction of a properly constituted authority. "Parliament should empower each County Council to yearly appoint a board composed of one person qualified in medicine, one in law, one by the Commissioners in Lunacy, one from the County Council, and one by the Commissioners of Prisons." Not more than two surgeons in each county should be licensed by the Home Office as operators, and an annual report of all operations should be presented to Parliament. Dr. Rentoul has, as will be seen, got his plan thoroughly organized—on paper. Though an Irishman, he is absolutely destitute of the sense of humor and makes his proposal with the most solemn gravity. He sees no difficulties in the way of his reform, and disdains to take into account either popular or professional sentiment. In this country, owing partly to its own deficiencies and partly to the anti-scientific bias so prevalent even among educated people, the social status of the medical profession is already somewhat doubtful. What would its position be if, among other unpleasant associations, the term "doctor" should come to connote a gelder and spayer of human beings?

SOCIETY PROCEEDINGS.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Regular Monthly Meeting, held November 28, 1903.

The President, Frank Daniels, M.D., in the Chair.

Purinemia.—This was the subject of the paper of the evening, and was read by Dr. Reynold Webb Wilcox.

Uric Acid in Gout.—Dr. Wilcox said that with regard to the sodium biurate always found in the tophi of gouty cases, there has always been some doubt as to whether it was the cause or the result of the gouty condition, that is, as to whether the deposit of the urate indicated an excess of urates in the blood, or was only due to some other condition causing a disturbance of metabolism with local manufacture of uratic material. Great as has been the doubt as to the cause of gout, however, there has been still more with regard to treatment. Accepting the suggestions as to the relationship of uric acid to the disease, it has long been considered that the principal element in the treatment must be the prevention of consumption of materials likely to produce xanthin derivatives. Very serious doubts have been thrown on this doctrine in recent times, however.

Goutiness.—This is a condition that develops in the gouty individual and is the result of the unstable metabolism which exists in the system and which is likely to lead to interference with the function of any large organ. The metabolic disturbances are extremely important. They constitute the reason for Woods-Hutchinson's recent definition of gout "a disturbance of health, with excess of uric acid in the urine." There are cases in which with undoubted symptoms of goutiness there is no abnormal amount of uric acid in the urine. On the other hand, the definition is too wide and includes certain cases that are recognized as bearing no relation at all to gout, for instance the uric acid infarcts, which occur in the kidney of the new-born child, are surely not to be considered either as an index or as a result of the gouty diathesis. It was shown nearly twenty years ago that uric acid in itself is not toxic and that it may be injected with impunity into animals without producing serious results. On the other hand the investigations of urinary analysts, have led us to the realization that a uric acid sediment is not pathological. The solution of uric acid depends on the presence of normal sodium phosphate in the urine and the absence of this salt, or its diminution very

readily leads to the deposit of uric acid as a urinary sediment. It is recognized, however, that there is some relation between the manifestations of gout and especially their alleviation and the presence of an excess of uric acid in the urine.

Lead as a Cause of Gout.—It is very well understood now and generally admitted that the ingestion of lead is a prominent cause of gout. A very large number of those who suffer from gout are workers in lead in one way or another and very few of those who suffer from chronic intoxication by lead fail to have symptoms of gout. It would seem on the new theory that the presence of lead interferes with the metabolism by which the formation of an excess of purin bodies is normally avoided and also their oxidation product, uric acid, is also avoided. Alcohol is a prominent cause of gout, but it is not definitely assured whether it is alcohol itself, or rather the esters and ethers which occur so commonly in the rich wines used by the wealthy classes and also in the malt liquors of the poor.

Diet in Gout.—It has been presumed that nitrogenous products are a prominent element in the causation of gout. Nitrogen, however, must be given. It can not be taken up from the atmosphere. It may be obtained then either from vegetable albumen, or from animal albumin. Vegetable albumin, however, is to many patients a little harder to digest than that which occurs in various flesh meats. Meats, therefore, must be used in moderation. The same thing must be true with regard to vegetable albuminous products. In a word the nitrogenous elements of the diet must be limited in quantity rather than quality. Two ounces of whisky may also be allowed, especially in patients who take considerable outdoor exercise. In those of sedentary habits and who are already burning up, less of the heat-producing material that is ingested than is normally proportionate to the amount of calories needed, these substances must be a source of additional labor to the liver or the muscles and may therefore be a new cause of metabolic disturbances.

The Purins.—In discussing Dr. Wilcox's paper Dr. Ogden said that very little is known about the purins. While they are familiar enough in the physiological chemistry of former years under other names, it is only for a year or two that they have been known as purins. Fischer first gave them this name, before this they were known as the xanthin and allied bodies. They are present only in small amounts even when the twenty-four hours' urine is examined. The xanthin bodies are usually present to the extent of from two to three up to seven milligrams; under certain pathological conditions, however, as in leucemia, and certain of the anemias they may be present in amounts as high as seven centigrams. The purin bodies are certainly very small in amount, as compared to the uric acid usually found. It is of course still a problem in physiological chemistry what the relationship of the purins to uric acid really is. Uric acid as a pathological factor has certainly had its day. All medical men are familiar with Haig's theory, but this is entirely upset by recent research.

Urinary Insufficiency.—Dr. Egbert Grandin said that the basis of the pains in the wrists, in the ankles, in the big toes, as they occur in so-called gout, or gouty conditions, is very interesting. It must not be forgotten, however, that analogous symptoms, preceded the puerperal condition as the result of urinary insufficiency. It is possible that the underlying basis of these painful conditions is a toxemia, whether the source of the poisonous products be the liver, the kidney or the intestinal tract. At the present time to substitute the term pure anemia for toxemia seems scarcely justifiable, as the

knowledge of the profession is not sufficiently advanced and a new word will only serve to cloak ignorance and give an idea that something is known that in reality is not.

Intestinal Indigestion and Gout.—In answer to some questions referred to him by Dr. Wilcox, Dr. Ogden said that the products of undue intestinal fermentation may possibly be a basis for gout. Fermentations are usually accompanied by the presence of oxalic acid in the urine. Oxaluria is usually found to occur whenever indoxyl, as Dr. Ogden prefers to call it, is found in the urine. The question arises whether the oxalates are connected with gout. Dr. Ogden has never seen a case in which this seemed to be probable. Hence it would seem that intestinal fermentation is not connected with gout. On the other hand, Dr. Ogden has seen good results in gouty cases from the use of sodium phosphates, whose effect is evidently to lessen intestinal fermentation. In one case with marked symptoms, 10-grain doses of sodium phosphate, used four times a day, in a glass of hot water, before meals and at bedtime, gave very great relief. This remedy sometimes increases the tendency to intestinal fermentation, as every physician who has had much experience with it knows. Recently in diet lists, Dr. Ogden has seen cauliflower and asparagus forbidden and he has wondered what the chemical reason for the prohibition was.

Clinical and Chemical Gout.—Dr. James J. Walsh said that for many years it has been the custom for the clinicians to accept from the physiological chemist explanations for gout and treat his patients in accordance with them. Gout is now getting to be better understood from a clinical standpoint, and it seems to be evident that there are many forms and that not a few of the vague, painful conditions known as gout or attributed to the gouty diathesis, are really manifestations of a hyperesthetic nervous condition irritated by absorption from the intestinal canal of toxic products. In a word, the true solution of many of the therapeutic puzzles would seem to be in the hands of the clinician and in a greater individualization of his cases than in any all-embracing theory from the chemist, which has so often proved fallacious. Dr. Haig's theory has been accepted by practically all the profession, and now is universally admitted to be without any proper foundation in physiological chemistry. Uric acid formerly explained rheumatism and gout; it has been given up completely for rheumatism and must go for all other conditions. There is no such thing in the nicely adjusted metabolism of the human body as an excess of uric acid.

Frequency of Gout.—Dr. Walsh said that the subject is of much more importance here in America than is usually considered. If an American physician be asked what is the comparative frequency of gout here in America and in England he will be apt to say that we may see one-third, or perhaps even one-fourth, or one-fifth as many cases as they do in London. The statistics of Johns Hopkins Hospital for ten years show that for every four patients suffering from gout, admitted to St. Bartholomew's Hospital in London, three were admitted to Johns Hopkins during the same period. Gout is then three-fourths as frequent here as in England. American gout is all earned, not inherited. There are two principal methods by which it can be earned. These are lead and malt liquors. Twenty-five per cent. of all the gout in this country occurs in patients who have a history of working in lead. More than one-half of the remaining cases of gout occur in persons with a history of taking malt liquors. Even our lighter beers in America prove a source of gouty manifestations.

Difficulty of Diagnosis.—The disease is by no means so easy to recognize as is usually considered and very many of the cases here in America are missed. At Johns Hopkins Hospital Dr. Osler reports that one case had been admitted three times as rheumatism, when on its fourth application tophi were found in the ears. At the present time to substitute another word for the uric acid diathesis, by suggesting that there is some other poison in the blood and giving it a definite name, is apt to cater to the easy method of diagnosis which has in the past heaped together a lot of things and called them gouty or lithemic, or due to the uric acid diathesis. Even patients from the lower East Side who come to the dispensaries are now beginning to tell us that they have the uric acid diathesis. Dr. Walsh would plead for a more faithful study of individual cases and for less assumption of knowledge and presumption of chemical explanations where none exist and where to use words is only to have cloaks for ignorance to conceal the fact that as yet medical men are only groping in the dark over problems of metabolism, and besides all this, to hamper the development of rational therapy because of hypothetical remedies.

Apparently Latent Gout.—Dr. Frank Daniels said that where there are no true gouty manifestations there often seem to be painful conditions pointing to the existence of a gouty diathesis. In some of these cases later on tophi have been found. In a certain number of cases a chalky deposit occurs beneath the conjunctiva of the lid—more frequently in children than in older patients. Whether this is to be considered as due to gout is a question that has often proved a puzzle to Dr. Daniels. In some of them there is a gouty heredity, in others no such history can be found and the subsequent conditions are not such as can be considered to be associated with gout.

Dietary Considerations.—In closing the discussion Dr. Reynold Webb Wilcox said that with regard to large amounts of water, certain distinctions must be made. If taken with meals a large amount of water always disturbs digestion and thus increases the amount of uric acid present in the system. If taken between meals water serves to flush out the system, and then there is less uric acid as a rule. It must be remembered, however, that uric acid, as such, does not exist in the blood. The urates may be found, but it is hard to understand how the biurates accumulate at certain points and certainly the theory suggested by Haig for their occurrence, must now be rejected.

Nervous Elements in Gout.—There is now no doubt that nerve exhaustion plays a prominent rôle in the disturbance of metabolism, that must be considered as the basis of gouty manifestations. Dr. Wilcox has one patient to whom, when he comes back suffering once more with gout, he considers it necessary to tell that he has not enough brains to run his liver and his business, and he must take his choice as to which he wants to go on properly. It is well known that important cabinet crises in England always give a crop of gout cases among the political big wigs. This same form of nerve strain also may bring on diabetes, or may make a simple glycosuria become a true diabetes. This constitutes another important bit of evidence of the relationship between the disturbance of metabolism which leads to gout and that which leads to diabetes. Both of them are evidently related also to the diathesis which causes the deposit of fat in the tissues and gives rise to obesity, which is a real metabolic disorder.

Indican as an Index.—Before beginning treatment for gout, indican will always be found present in the

urine and the progressive amelioration of the case can best be determined by means of the disappearance of indican. Commonly if any excess of phosphates have been present they will also disappear. As a rule, Dr. Wilcox has considered that oxaluria was also the result of suboxidation processes, somewhat as are diabetes or gout. In certain cases the alternation of sugar and an excessive amount of uric acid in the urine is not unusual.

Sodium Phosphate in Gout.—Some physicians seem to consider sodium phosphate as a possible remedy for the intestinal intoxication which causes gout. The difficulty always has been, however, in the use of this remedy that after a time symptoms of intestinal irritation were set up and even uncomfortable fermentative processes occurred. The reason for this has recently come to light as the result of the investigations of the committee for the correction of the Pharmacopœia. Nine-tenths of all the normal sodium phosphate on the market contains something more than traces of arsenic. This is due to its manufacture from sulphuric acid, made from pyrites containing considerable amounts of arsenic ores. It is not surprising that this form of sodium phosphate should set up fermentations. On the other hand, it is possible that when small amounts of the sodium phosphate are used, the small amount of arsenic administered may prove tonic and alternative and help in the good results sometimes obtained.

Gout and Toxemia.—There is no doubt that purinemia is a form of toxemia due to intestinal fermentation. The endeavor must be to make this term more specific, so as to get at the exact cause of the symptoms in order to treat them properly. Elimination must be encouraged, but, if possible, the formation of toxins must be stopped. It is this that Dr. Wilcox has attempted to do.

In answer to a question, Dr. Wilcox said that the formation seen in the lids of young children are often true gouty tophias, in his experience, he has found biurate in them.

Rheumatism and Gout.—Dr. Wilcox considers that acute rheumatism must be an infectious disease; that arthritis deformans is a spinal disease; that muscular rheumatism is closely akin to gout and that pleurodynia and other similar muscular pains are much more gout than rheumatism. He recalled the definition of the old Harvard Professor who said that muscular rheumatism was so called notwithstanding the fact that it was not rheumatism and was not in the muscles. It cannot always be cured by diet, however, and, if possible, remedies must be obtained for it.

Theory and Observation.—Dr. Wilcox considers that English physicians have made a serious mistake by attributing an activity in these chronic, painful conditions to uric acid, which it does not exercise. This substance must now be taken down from its pedestal and be allowed to sink into the obscurity from which it should never have been permitted to emerge. At the present time advances in physiological chemistry and more careful clinical observation seem likely to give more positive information in the next ten years than the medical profession has acquired during the last fifty. It seems probable then that many of the painful conditions will be found to be due not alone to one factor but to several factors. Something may be learned, too, of the reasons for the affinity of rheumatism for young people and of gout for the old. Possible combinations of gout and rheumatism will in themselves prove a serious and puzzling subject for study, but properly directed clinical observation will undoubtedly throw much light on obscure conditions.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, held November 11, 1903.

The President, William H. Park, M.D., in the Chair.

Typhoid Bacillus Infection of Oysters.—Dr. Cyrus W. Field read a paper on this subject. The work was undertaken at the suggestion of Dr. Park to determine whether or not the oyster could be a means of infection, and if so, under what conditions it would act in this manner. After various experiments, it was found that the best method of infecting tanks in which the oysters were placed for observation was to sow the *Bacillus typhosus* on agar slanted in flasks; this incubated for twenty-four hours, at the end of this period the growth was washed off with normal salt solution; this was poured into the tank and more fresh salt solution added to the flasks to wash off the remaining bacteria. The oysters were removed at the end of certain periods and were examined bacteriologically. At each period five oysters were taken from the tanks, washed and scraped to remove as many organisms as possible from the shell. $\frac{3}{10}$ c.c. of juice was used to infect each plate; at the end of forty-eight hours 20 to 40 colonies were fished from each plate. They were planted in bouillon and at the end of twenty-four hours were examined in hanging drop and a strongly agglutinating typhoid serum was added. The dilution used was 1-800. If the organisms in the tube did not agglutinate they were thrown out and no further tests were made upon them. If they did they were planted in lactose, agar and milk. In the latter part of experiments he relied entirely upon the agglutination test. No organisms were found agglutinated in this series that did not react as *Bacillus typhosus* to the other tests.

No. oysters	No. bacteria tested per c.c. in infected tank	No. hours in infected tank	No. bacteria in infected tank	No. bacteria in oysters per c.c.	Percent of <i>Bacillus typhosus</i> in oyster
5	20,000	24	0	1,200	22
5	14,400	48	0	900	18
5	8,000	96	0	750	9
5	5,500	7 days	0	570	1
5	4,200	9 days	0	490	1
5	4,600	14 days	0	300	0

In the next experiment, oysters were taken from infected tank at the end of twenty-four hours and placed in an uninfected tank—fresh salt water, same as that in the Aquarium, used with all fishes.

No. oysters	No. bacteria tested per c.c. in infected tank	No. hours in infected tank	No. bacteria in infected tank	No. bacteria in oysters per c.c.	Percent of <i>Bacillus typhosus</i> in oyster
5	19,500	24	0	1,300	19
5		24	0	550	5.5
5		48	0	300	
5		96	0	240	
5		7 days	0	200	
5		9 days	0	210	
5		14 days	0	190	
5		21 days	0	200	
5		28 days	0	190	

Never later than the end of the second day could the organisms be found in fresh water. This was due to the great dilution in the fresh water tank and their disappearance. On taking the sea water used in these experiments and infecting it with *Bacillus typhosus*, it was found that the organisms disappeared entirely from the

water from the sixth to the eighth day. Fifty per cent. were destroyed at the end of twenty-four hours. Some oysters were removed from the infected tank and kept on ice; no diminution was found in the number of bacteria present per cubic centimeter up to the eighth day. The question is, Does the oyster ever come in contact with infected material, and if so, does not salt water dilute and destroy the organism? That is, if taken from deep sea beds and brought to fresh water. Oysters are removed from beds and taken to small or large creeks and deposited at low tide in drinking or fattening houses, built in the stream at its edge, and as the tide rises the house is filled with water which covers the oysters. As the water rises, one can hear the hissing sound made by the oyster in sucking it up. The specific gravity of this water is less than they are accustomed to, and by a process of osmosis the oysters are enlarged, making them fat.

The streams may be grossly contaminated by sewage. Should a case of typhoid occur in a town near the creek and these oysters become infected by discharges from the patient, those eating the oysters would have typhoid fever, as was the case in Middletown in 1894. This epidemic was traced to oysters fattened in a river. Patients lived on the stream near the drinking house and discharges were drained into the river. Wherever the oysters were shipped a typhoid epidemic followed. This condition of drinking houses is still the same in many places where oysters are shipped to the market. The only way is to forbid the sale of fattened oysters, or the establishment of oyster beds where the water might be contaminated, or the process of fattening where the water was or could be contaminated.

Dr. Wm. H. Park, in the discussion, said that if by the work of Dr. Field, and further experiments, it could be definitely proven that the bloated or fattened oyster was a source of typhoid infection, the Health Department would take the ground that oysters in New York sold in the shell, should not be oysters bloated or fattened in creeks, which are more or less grossly contaminated with town sewage which flows into the creeks. It is fairly easy for anyone used to it, to detect the bloated oysters from those taken from the deep sea beds. Those who care most for oysters, do not care for the bloated or fresh water variety; they prefer those from the deep sea, which seem to be safe.

Dr. Manges asked Dr. Field if the fattened oysters had any distinguishing marks, and what was the percentage of their sale in New York.

Dr. Field replied that there were no distinguishing marks to be seen, except by opening the oyster. If they were fat and plump and filled the shell, which normal oysters did not, they were almost sure to be fattened. The more reputable dealers would not handle them. Oyster connoisseurs would not touch them. They would detect the lack of the brackish taste of deep sea oysters.

Dr. Manges said that at Mt. Sinai Hospital there were a large number of typhoid cases each year, but for Mosaic reasons oysters were not consumed by many of these patients. Outside of the hospital, in cases of typhoid fever, he always made a point of asking about oysters. Wherever typhoid had been found in cases of oyster-eating they had been eaten outside of New York. He did not know of any cases arising in this city. He did know of cases of oyster infection coming from places in the neighborhood—Long Branch and Atlantic City. Two years ago at the latter place the water where the oysters were fattened was a splendid culture medium from sewerage contaminations. As far as New York oysters went, he thought we were pretty safe. Everything suspicious in oyster culture should be prohibited and if the Board of Health would make known the point

emphasized by Dr. Field, how to tell the fattened oyster, it would afford oyster lovers satisfaction and protection. Many were afraid of the oyster on account of this agitation.

Dr. Park said that Dr. Field had said that on account of newspaper talk, the demand for oysters had fallen off one-third. It was true they did not know of any such cases in New York, but they could, by such safeguards, make the use of oysters perfectly safe. Not interfere with their use, but rather allow people to use them.

Prof. G. N. Calkins gave a demonstration of the results of his studies on the bodies found in the lesions of variola. The bodies seen were the same as those originally described by Guarnieri and Pfeiffer, and more recently by Councilman, who had placed the material for the present study in Prof. Calkins' hands. It had been fixed in Zenker, preserved in alcohol, and stained by the method described by Borrel in the *Pasteur Annals*, 1901, p. 49. Three possible cycles of development of the organism have been traced, the most important of which, the sexual cycle, we owe to the observations of Prof. Councilman. This is intranuclear. The first cycle is a simple growth with segmentation into gemmules, which then infect fresh tissue cells. In the third, which also appears to be a sexual cycle, pansporoblasts are formed, which break up, leaving a *Restkörper*. Vesicular bodies, similar in appearance to those described in the epithelial cells in variola, are also seen in carcinomata and sarcomata, and in the tissues infected by diphtheria, but the varioloid bodies can be distinguished by the fact that a complete series can be traced.

Dr. Tyzzer, in the discussion, gave a brief outline of his work. He said he had made a comparative study of the lesions following vaccine inoculations and the specific inclusions which accompany those lesions. In taking up this work before being fully convinced that these inclusions were organisms, he followed out various hypotheses. In superficial examination, these inclusions may resemble various sorts of degenerations. He sought to trace these inclusions back to included leucocytes, red blood corpuscles, or degenerations of the protoplasm of the cell. After studying a great many lesions he had been unable in any case to find any form which links the typical characteristic inclusion with any of these degenerations. In vaccine lesions he had found that they formed the same series as given by Dr. Calkins for the cytoplasmic forms. The organisms at first lie between cells, become larger by growth, take their position near the nucleus, and finally undergo segmentation into new forms. Concerning nuclear forms, he found none, although degenerating and disintegrating nuclei were found. The experiments had been made upon the tissues of rabbits and various other animals on cornea, skin and mucous membrane. It was quite evident that these inclusions bore some resemblance to degenerations, but after a study of lesions in these various animals and in the various tissues of these animals, he still considered that they are organisms. In the course of this work lesions were studied from a series of one hundred rabbits, several guinea-pigs, two sheep, twelve calves and three adult cows.

Dr. W. R. Brinckerhoff spoke briefly of work done by him with Dr. G. B. Magrath, under the direction of Dr. W. T. Councilman, upon the lesions of experimental variola in the monkey. They found many of the forms described by Prof. Calkins in the lesions of smallpox in man, the work being strongly confirmatory of the work of Prof. Calkins. Mention was also made of a degeneration of certain cells of the testicular epithelium in acute diseases which led to forms simulating a certain stage of *Cytorrhycles*. He then pointed out the

grounds on which such a degeneration product could be differentiated from the parasite.

Dr. Anna W. Williams said that before Dr. Councilman's very important paper appeared, their section work was mainly with rabbits' corneas inoculated with vaccine virus. Since his paper, they had begun the study of serial sections from monkeys inoculated with variolous virus from different cases of variola. This work was practically just begun as they had studied sections from only two monkeys, and she therefore felt some hesitation in speaking about it. She wished to mention, however, one or two perplexing points. Their two monkeys showed a great difference in reaction to the inoculation of the virus. In one, the eruption developed late and was of a mild form. In this one, very few definite intranuclear changes were found. In the other monkey, an early and abundant eruption developed, and both the intracellular and intranuclear changes were marked. In sections from this monkey they had found nearly all of the forms described by Dr. Calkins, but they had not yet been able to trace out the definite, consecutive cycle described by him. In the first place, there seemed to be frequently beginning vesiculation with no bodies present either in the vesiculated cells or in those in their immediate neighborhood. Then the intracellular forms showed an extreme irregularity in the time of their appearance, and in the size of the ameboid forms, and in the size and shape of the segmenting forms, more of an irregularity than Dr. Calkins had described in his remarks. Of course, they knew that they might have degenerative changes in such a protozoon, as well as in the host cell, and that such degenerative changes might occur more frequently in one monkey than another, giving at times a very complicated picture. Such a condition might account for some of the peculiar intranuclear changes which they had found. They had been able to trace a series of apparently undoubted degenerations into which some of the forms shown by Dr. Calkins seemed to fit. A substance appeared in the nuclei in advancing lesions which stained a homogeneous, brilliant pink, with hematoxylin and eosin, and a greenish blue with magenta and indigo carmine. This substance first appeared in small, irregular masses, often by the side of the principal chromatin mass of the nucleus. As the lesion advanced, this substance was often seen partially, and then completely surrounding the chromatin mass, leaving that as a small, more or less rounded central body which takes the chromatin stains as a rule brilliantly. Such a picture seemed to resemble one of the first stages of the primary sporoblasts as described by Dr. Calkins. Other nuclei were more or less filled with this homogeneously staining material, most, however, still retaining a chromatin mass. Many of these later nuclei contained in this homogeneously staining material, irregular granules, some highly refractive, and others not, some larger with a vacuole-like center approaching definite ring bodies in appearance, and some of these with a central granule. It was thought by the speaker that these appearances might be due to mixed protozoan infection and degenerative changes, but, so far, they had been unable definitely to say that they were due to more than degenerative changes.

Dr. James Ewing said that he had heard Dr. Calkins' presentation three times and felt that it had become more convincing in each repetition. From the very first he had been greatly impressed by the examination of the specimens, and had felt that we were probably face to face with the solution of the problem of variola. He had never been quite free from doubt, however, regarding the interpretation to be placed on the intranuclear forms, while in regard to the extranuclear vaccine bodies he believed that no one could afford to ignore the

generally accepted opinion of pathologists that these bodies represent degenerative products. The line of proof thus far brought forward to demonstrate the protozoan nature of all these bodies, intra- and extranuclear, seemed to him incomplete. Very little or no attention had apparently been paid to the possibility of reproducing the intranuclear forms by other methods. In his own study of vaccine bodies he had become familiar with and overwhelmed by the host of structures in necrosing variolous lesions which recall the forms of protozoa, and early concluded that it would be impossible to demonstrate the presence of a definite protozoan cycle on the basis of morphology alone. During the past year he had been attempting to ascertain if vaccine bodies varied in the different animals known to be susceptible, and in any others that might be made to react in any way to inoculations of vaccine; in other words, to establish a comparative morphology of vaccine bodies. He had in this way compared vaccine bodies produced in man, monkey, rabbit, frog, and mud-puppy. The same type of extranuclear body, in general, seemed to be produced by vaccine in each of these animals. One could hardly believe that the same protozoon was capable of growth in animals so distantly related as man and batrachian. He thought that the appearance of the vaccine body in so many different animals could with difficulty be reconciled with the protozoon theory, and seemed to indicate rather that this body represents a universal function of the diseased epithelial cell rather than a particular microorganism invading a cell. Early in 1903, Sikowsky, a Russian observer, reported that vaccine bodies in the cornea could be reproduced by inoculation with diphtheria toxin. In repeating this work he had been greatly surprised to find that within twenty-four to forty-eight hours after inoculation of the rabbit's or frog's cornea with diphtheria toxin practically the same changes were produced as by vaccine. The very numerous forms of bodies produced resembled in striking fashion those seen in variola and vaccine. Some of them were totally different in type from anything he had ever before seen as a result of degenerative processes, and it would have been difficult to have imagined them to be of such origin had any other conclusion been possible. In tracing the origin of these bodies he had come to the conclusion that they originated from a peculiar form of coagulation-necrosis with the production of a semifluid elastic material, which, by comminution and vacuolation reproduced many of the protozoon-like forms of vaccine bodies. This necrotic process involved either the nucleus, or the cell body, or both. It produced minute or large rings and globules, intranuclear or extranuclear, single rings or congeries of vacuoles, rosette-like bodies, and very peculiar cyst-like bodies large and small. Many of them he found indistinguishable from similar bodies he had seen in variolous lesions, and strongly resembled the bodies included in the cycle of the variola parasite. In drawing conclusions from these observations he felt one could not safely claim that no protozoon forms are mixed up with the vaccine bodies in variola, but they did seem to show that the morphological evidence so far presented had failed to demonstrate any protozoa in variola, and that morphological studies alone if limited to variola would probably always remain indecisive.

Prof. Calkins, in closing the discussion, said that he felt quite sure that the bodies he had just described were parasites and not degenerations.

Neurofibroma of Hand.—Dr. D. S. D. Jessup presented a neurofibroma removed from the hand of a woman in April, 1903. The patient was thirty-four years old. Two months previously her attention had been called to a swelling in the palm of her hand. This had

increased in size and become painful, and she came to the Vanderbilt Clinic for relief. Examination showed an elongated swelling on the palmar surface of the left hand extending from the base of the second metacarpal bone to the middle of the first phalanx of the index finger. It lay over the flexor tendons of the index finger, was soft, apparently fluctuating, and a diagnosis of tuberculous tenosynovitis was made. Under ether anesthesia an incision was made the length of the growth, and it was then easily dissected away from the surrounding tissues. The tendons were not exposed, but at the ends of the tumor a pedicle was found which proved to be a division of the medium nerve. On reaching the tumor the nerve broke up into small filaments which were distributed over its surface. After removal the growth measured 9 cm. in length, was lobulated, and was 2 cm. in diameter at its thickest points. The consistency was soft. Section after hardening with formalin showed firm white fibrous tissue. Transverse sections were stained by the hematoxylin-eosin, Picro-acid-fuchsin and Weigert methods. They showed a growth of fibrillated connective tissue which was very cellular. The whole tumor was made up of this tissue with the exception of a few bundles of nerve fibers lying on the surface, which corresponded to the nerve filaments noted at the time of the operation. The tumor had apparently sprung from the perineurium and there was no proliferation of the nerve fibers. The patient did not show tumors of any other nerves, and the case was also interesting from the standpoint of surgical diagnosis.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON ORTHOPEDIC SURGERY.

Stated Meeting, held December 18, 1903.

The President, T. Halsted Myers, M.D., in the Chair.

End Result in Congenital Dislocation of the Left Hip—Lorenz Method.—This was the presentation of Dr. W. R. Townsend. N. V., female, aged nine and a half years, had no treatment until at the age of five years, when the hip was easily reduced by the Pacci method, and placed in plaster-of-Paris. At the end of six weeks, the plaster having become soiled, it was necessary to change it, but the parents refused to have it reapplied, and nothing further was done. The child walked with marked limp, but did not tire, except after excessive exercise. November 3, 1902, 1½-inch shortening; trochanter one inch above Nélaton's line. On December 26, 1902, Dr. Frederic Müller, at the Polyclinic Hospital, before the class reduced the hip by the Lorenz method and applied a short spica bandage. Three months after the operation the plaster was reapplied. Six months after the operation the limb was brought down to about 45 degrees of abduction. On November 2, 1903, the plaster was entirely removed. Since then the child has been allowed to walk. December 11, 1903, the child walks with very little limp, has no pain, does not tire easily. R. A., 25½; L. A., 25; trochanter about a quarter of an inch above Nélaton's line, limb held in abduction. There is one-eighth of an inch shortening of the bones of the leg, and the radiograph shows great difference in the development of the two femora and the head of the bone in the acetabular cavity. Passive motions: Flexion can be carried beyond a right angle, abduction and inward rotation not limited, extension nearly perfect. This case is presented as a success in a patient beyond the age limit that has been suggested by Lorenz, in which success can be reasonably expected by the non-bloody operation.

Double Congenital Dislocation of the Hip.—Dr. H. L. Taylor presented photographs of the hip which pre-

sented some peculiar features. The child, twelve years old, walked cross-legged with the left leg in front of the right, crossing at or above the knees. The dislocation was not posterior on the dorsum, but superior anterior. The head of the bone was easily felt behind the anterior superior spine of the ilium, and the trochanter and neck could be easily palpated. An X-ray had confirmed the diagnosis. In addition, the child had an equinovarus of the right foot and a left pes valgus. These congenital deformities of the feet had never been treated, and the first step was to correct them, which he had done; the flatfoot by manipulation and tenotomy of the peroneals, and the equinovarus, which was very severe, by a modified Phelps' operation. The hip-joints at present are firm in their new sockets, and for that reason, and considering the age of the child, the speaker did not think it advisable to attempt reduction, but preferred to correct the deformity by the Gant's operation.

Study of Relapse After Reduction of Congenital Femoral Dislocation.—This was the subject of Prof. E. H. Bradford, of Boston. The main points of this interesting paper were as follows: The bony acetabulum nearly always is well formed, but shallow. The cotyloid ligament is the main instrument holding head of femur in position; therefore, in reducing dislocation, use just as little force as possible, so as not to weaken or destroy this ligament. This is generally torn by the motions of hyperextension, and pressure forward of head while limb is in extreme abduction. Other causes of relapse: Poor support of plaster spica after ecchymosis and swelling have disappeared and muscular atrophy has occurred. Contractures of injured parts form and hold great trochanter in its position close to tuberosity. When the limb is brought down to normal position, trochanter is held by these adhesions and head of bone is therefore forced to move over edge of acetabulum forward and upward. The paper was illustrated by specimens, lantern slides and models.

Dr. Adams, of Boston, in discussing the foregoing paper, said he had seen a large number of cases come back out of place, and he thought ecchymosis and hematosis resulting from much manipulation during operation, might be one of the causes. He thought in a fair percentage of cases, relapse could be attributed to the insufficient holding of the hip by the plaster cast. He thought an apparatus could be put on a month after operation, which could be slipped off and on in two or three minutes, and the patient examined every two weeks.

Dr. V. Gibney was glad to hear Dr. Bradford and Dr. Adams express themselves on the subject so ably. He had had an impression that the very things criticized were the things we were trying to obtain—that is, atrophy of the muscles, and looseness of the plaster so long as the head had been placed in position and there was good abduction. The constant thumping and weight-bearing function of the body tended to thicken the capsule and make it shrink more or less into a firm capsule about the head. Whether the bone slipped out of place in the plaster or not was not clearly proven. He had seen cases after removal of the plaster, where the head of the bone was not in good position. Dr. Bradford's contention was that this muscular tissue which had been torn, cicatrizes and becomes firm, dense tissue, and as the attempt is made to bring the shaft around into position, this does not yield, but the head slips forward and later on there is, as he had seen in a number of cases, an anterior position, when he had felt sure, at the time the plaster was changed, that there was no relapse. He thought Dr. Bradford had made it very clear, that if there was this shortened dense tissue as opposed to the imperfectly contracted capsule, as the

limb was brought around on its axis, recurrence resulted. Dr. Bradford's point was not to overstretch the capsule. The next way of preventing recurrence is to take down the plaster earlier than six months, if the bone is in place, and not give the tissues time to become dense and shortened. These are the two points: Not to stretch the capsule too much, and not to leave too long in position.

Dr. Bradford said the idea was to take the head of the femur and bore a hole large enough to get the center of the head in the center of the socket as nearly as possible, and as much of the capsule and cotyloid ligament that holds it should be saved as practicable. If one wanted to have his trousers held up, he did not destroy his suspenders. Too much stretching should not be done. After the head of the bone was in place, it should be looked at to see whether it had slipped. If it had slipped in the first month, it could be put back.

Dr. V. Gibney asked how he brought it down in good position without interfering with this tissue?

Dr. Bradford said his idea was that in a month that tissue would be cicatrized. It was comparatively loose. One could take the X-ray and see where the head was, and move it or do what was required. It was in a pliable condition in a month. In six months it would not be so easy.

Dr. W. K. Townsend said he was much interested in this matter, especially of late, since the cases done by Lorenz had been taken down. The patient presented at the meeting, done by Müller, was one of the best results he had seen of any operated on at that time in New York. Because failure occurred, it did not follow that the Lorenz method was not good. As far as reducing the dislocations was concerned, Lorenz was the best operator in the world, but the end results showed that there was something in the after-treatment or dressings that needed improvement, as hips apparently perfectly reduced, months afterwards slipped out. The studies Dr. Bradford was making would probably prove of great value. He was working to ascertain why so large a percentage of cases relapsed. Dr. Townsend was not sure the reason of failure was damage of the capsule, nor the facts, as stated by Dr. Bradford, in regard to position. The speaker thought there was no question that the less you damaged a part or tissue, the better the result would be. Damage may have been done in the past by demonstration, to show how a hip could be slipped in and out. The use of a machine in reduction might prove a success, especially in the older cases. The percentage of perfect results or cures, he thought, when all the cases were tabulated, would probably be under 25 per cent. He did not consider an anterior reposition a cure, as the femoral head was not in the acetabular cavity, nor was it proper to report a case as cured under a year, as many that had been apparently cured relapsed shortly after removal of the cast. Those in which the head of the bone slipped out of the socket before the removal of the dressing could only be classed as failures and the shrinking of the body away from the plaster spica might permit this to occur in some cases.

Dr. Taylor said he had been exceedingly interested in Dr. Bradford's beautiful demonstrations and also in the experiences he had had, with others, in taking down congenital hips in the last few months and noting results, and in some things he had seen on the other side last summer. In Paris there were two men who had some ideas on the management of congenital hip which were new to the speaker. Kirrison made a great point of making the reduction over the inferior border of the acetabulum. After overcoming resistance of the abductors he used hyperflexion, bringing the head opposite

the inferior border, and by rotating outward, it slips over the rim. Dr. Calot, of Berck, made a great point of putting the legs up in the inverted position. He said, as does Dr. Bradford, that closer apposition of the head to the acetabulum may be obtained by inverting the legs. The knees have to be flexed and fixed in that position, and that means that the child cannot walk if it is two-sided. He said the child could get along without walking, and that the weight-bearing feature of the treatment was not necessary. The first actual case of reduction seen was in Paris, by Dr. Bradford, who used a procedure similar to Kirmisson's. The case was one of a girl of twelve years, who was very thin and delicate. Everything was done with the greatest possible deliberation. He used no massage of the adductors whatever, he simply stretched them, and they gave way with perfect ease by that method alone. The hip was reduced in fifteen minutes, including pauses, with very little exertion, and no violence at all. It was probably not so difficult as most cases of twelve years, on account of the thinness of the girl. In Paris and Berck they were taking off plaster splints in five to six months. In Berlin they were taking off the plaster in three months. Some of the cases seen by Dr. Taylor, where the splints were removed in three months, seemed to be as perfectly reduced as those seen here at the end of six, eight and twelve months. An important point was that the operations should be done with more deliberation and less violence. He had done several operations this fall without massage, but they were very young cases, and not convincing. The ecchymosis afterward was very much less. He thought there was a future for mechanical reduction; although he had had no experience with it, it appealed to him on rational grounds.

Dr. Murphy said he had seen the work of Professor Lorenz in Vienna this spring. He had seen a great many good results and some poor ones. He saw Lorenz's after-treatment of all his cases. A great many were attended to by his wife, who seemed to be the head of that department, and was very successful.

Dr. Fisk said that between 1896 and 1899 he had had charge of twelve cases. The last time he had looked up the record, about 60 per cent. had relapsed. He did not mean to say that 40 per cent. were cured. Many cases relapsed because reposition had not been done in a perfect manner, and many secondary displacements occurred through careless after-treatment. The cases should be kept in the wards for the first three months and watched very carefully, and the position of the head of the femur noted by X-ray.

Dr. Townsend said that Dr. Lorenz himself returned to this country and removed several plaster casts. He dictated the notes. He examined four cases; there was not a case of the four which he said was a perfect anatomical reposition. They had been in the plaster he originally applied six months, therefore there was no question as to change of dressing, etc., by different physicians.

Dr. Jäger said in 1900-1901 Dr. Schäfer was using an orthopedic appliance in preference to plaster-of-Paris after reduction of dislocation, as did Dr. Hoffa. Dr. Jäger thought subtrochanteric osteotomy valuable in cases of anterior or posterior twists of the neck of the femur; thus allowing the feet to be made parallel without danger of redislocation.

Dr. Myers mentioned a case reduced three times with the ordinary manipulations of Lorenz, each time relapsing. About one and a half years ago he reduced the hip by the open method with the assistance of Dr. Harry Sherman. The head was strongly anteverted, and the capsule, tightly constricted about the head, had previously been reduced with it into the acetabulum. The

limb was put up in marked inversion, exion and abduction. Three months later, after subtrochanteric osteotomy, the leg was rotated forward 45 degrees, leaving the head in good position. The boy has a perfectly reduced hip, with almost no motion. Lorenz left the plaster on for six months, for the express purpose of allowing contracture of the abductors, stating that when the limb resumed its original position, the head would thus be driven more firmly into the acetabulum. As to manipulation, Dr. Myers did not think he had gained anything by massaging the abductors. After being held in plaster for six months, the muscles became atrophied, and it would be better to shorten the treatment if possible.

Dr. Adams said that Dr. Bradford had shown in one specimen the leg put up in a posterior position. He thought it would not do in a shallow acetabulum. He thought in a large number of cases when the leg was put in that position, and the leg forcibly adducted, the trochanter acted as a fulcrum on the side of the pelvis to pry the head out of the socket.

Dr. Homer Gibney said that since Dr. Lorenz had visited this country, the surgeons at the Forty-second Street Hospital, had been putting up cases of hip disease in which practically all disease had been arrested and the brace removed, in the short, light-weight plaster spica. The men in the plaster room, Out-Patient Department, at the hospital, put on these casts without any assistance whatever, except such as given by the mother or father of the child. He had recently seen one of the staff applying one. The patient, a child, was on the table, securely balanced on the hip rest and cushions under the shoulders. The doctor was putting on the cast with great dexterity, with no assistance whatever. This is being done every day at the hospital by almost every one on the staff from House Surgeon down to Junior's Assistant.

The Bartlett Machine.—Dr. Bradford said, when using the Bartlett machine, in order to protect the skin, they covered the foot with felt and then over the felt they put some leather free of oil which by soaking was made as soft as moose hide. That was shaped around the ankle the night before. A close hitch of rawhide was put around that. In this way a 300 kilo pull could be put on without the slightest injury to the ankle or knee. For the past year he had been trying to get the joints in position without operation of any sort. He was inclined to think if, as in the case of Dr. Myers, in order to secure the head in place it was necessary to turn the toes in and keep them in, a subsequent osteotomy would be necessary. Dr. Bradford said we did not know how many children had a twist of the femur pointing forward nor how much of a twist was compatible with locomotion; until that was known, care must be exercised about osteotomy. Dr. Adams had examined a number of cases, in which the Bartlett machine was used. A man did not want to talk of cures until the patient had been out of plaster and walking about for a year. Dr. Adams' cases ranged in age from thirteen years to four years. Of the older cases one failed absolutely. That was a boy of thirteen years, with strong muscles. He was cut down upon and afterward it was found that the head was misshapen, and the socket small. By no manipulation could it be put in. The head was shaved and an attempt made to put it in the socket, but it slipped. Two cases of twelve years, were thought to be put in; they were still in plaster. Dr. Adams had examined them and thought they had slipped. In a double case, ten years of age, one was put in but slipped; it will be put in again. The other will be put in also. In a girl of nine years,

the bone was put in; X-ray showed that it had slipped, as was thought because the plaster was loose. One of four years of age went in very easily. It has been taken out of plaster. The capsule is now loose; it may slip. Up to date the record of machine cases is pretty good. Thirty per cent. of cases have been failures; the others apparently have not relapsed.

Dr. Taylor showed a number of instruments: plaster cutters; acetabulum scoop, in different sizes, giving a firm grip; another plaster tool; the old Wolf forceps for separating plaster and prying it up after cutting it. The Adams saw, modified by Mr. Jones, having a very beautiful handle modeled after the ordinary carpenter's saw, giving perfect control; tenatons devised and used by Mr. Jones, with straight edges somewhat advanced from the handle. Dr. Becker's hook for hooking up tendons, etc.

Several plaster-of-Paris pelvises were shown by Dr. Myers showing the result in cases of congenital dislocation not operated upon.

Dr. Bradford showed a three months' fetus having a very strong cotyloid ligament, also an older fetus having the same ligament well developed. In another fetus showing congenital dislocation, the ligament was not seen. He showed a specimen of double congenital dislocation in a child of two years. The hips on both sides had been reduced, but did not stay. One was cut down upon and that stayed reduced. The child died of whooping-cough before the second hip was cut down upon. It was found that the bloodless operation failed because the acetabular ring was much smaller than the head. Another specimen was shown, of a child not operated on. The capsule was stretched over the acetabulum, covering it like a drum head. A specimen was shown of congenital dislocation which had been cut down on with the old Hoffa method. A good socket, as was thought, was bored out. The child died of diphtheria. On making a section, it was found that so far from making a satisfactory socket, the new socket was half an inch above the natural socket, which was quite deep and very good.

NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, held January 5, 1904.

The President, Wm. Egbert Robertson, M.D., in the Chair.

Pancreatitis was the title of a paper read by Dr. John B. Deaver, in which he stated that he did not believe that the disease was such an uncommon affection, but that it was comparatively seldom recognized. After going fully into the anatomical structure and position of the organ, he remarked upon the variation in size and structure of the two ducts (the duct of Wirsung and the duct of Santarini) as shown by the work of Opie thereon; he referred to the close association of the pancreas with the biliary passages, and divided pancreatitis into the acute, subacute and chronic forms, the former being subdivided into the hemorrhagic, suppurative and gangrenous. The most important symptoms are epigastric pain, tenderness, tension and tumor, with or without obstructive jaundice, and evidence of mechanical interference with the mobility of the stomach and duodenum, the point of greatest tenderness is usually about one to one and one-half inches above the umbilicus. It is most frequently mistaken for obstruction of the bowel and may be confounded with gastric poisoning, phlegmonous inflammation of the gall-bladder, or the end of the appendix

that is directed toward the liver or epigastrium. He stated the causes to be infection of the biliary passages, infection from the intestines and trauma. It is usually accompanied by fatty stools and total extirpation of the pancreas will be followed by glycosuria.

Dr. John H. Musser then considered the subject from the standpoint of the medical diagnosis, and believed that the reason pancreatitis had been so seldom recognized in the past was owing to the tendency to attribute the condition to other causes, as it was not until the work of DaCosta that jaundice was considered a pancreatic symptom, being always referred to the biliary tract. Among the symptoms he enumerated were epigastric pain, diarrhea, nausea and vomiting and, in the late stages, of the condition tumor. He called attention to the fact that prior to the work of Fitz, Mayo Robson and Oser very little attention was paid to the pancreas at autopsy. He divided the condition into (1) acute pancreatitis without hemorrhage; (2) acute pancreatitis with hemorrhage; (3) chronic pancreatitis. In the first variety there is usually the outpouring of a large amount of serum into the lesser peritoneal cavity, causing rapid effusion, accompanied by epigastric pain, nausea, vomiting and epigastric distention and resistance, with or without dull tympany. The effusion interferes with the action of the lungs and causes the symptoms of dislocation of the heart, and may be accompanied in six to eight hours after the onset with moderate jaundice, and is frequently confounded with gall-stones and intestinal indigestion. Hemorrhage may occur from three to four, or even as late as twenty-four to forty-eight hours afterward, and will be accompanied by symptoms of shock. He reported a case of the first variety occurring in a woman aged over sixty years, accompanied by jaundice and interference with respiration. Operation revealed a considerable amount of fluid in the peritoneal cavity. Drainage was established and the patient made a good recovery. The second variety was illustrated by the case of a man who was thrown from a wagon, and later epigastric pain and vomiting ensued, but no shock; examination revealed a large, dull tympanitic tumor, which was the cause of considerable distress. Exploratory operation showed the peritoneal cavity to be filled with fluid and death ensued in twenty-four hours.

Chronic Pancreatitis.—The symptoms of this disease were enumerated as follows: Flatulency, shock, chronic intestinal indigestion, epigastric pain, obstinate constipation, and diarrhea with fatty stools, and intermittent glycosuria. The patient is usually under middle life, and generally moderately emaciated or very fat, and has suffered from time to time with attacks of pain, which have probably been diagnosed as intestinal indigestion or gall-stones; in these persons as a rule there is gastric atony. If the patient takes a large amount of cream or fat it may be recovered from the stools. In the thin patient there is ptosis of the organ and it is usually very hard, but in the fat patient, physical examination usually shows no evidence of disease of the organ. There are usually present symptoms of anemia (either constantly or at times), gastric disturbance and neurasthenia. He referred to a patient who had suffered from two attacks of pernicious anemia within two years. The X-ray revealed such a mass in the pancreas as would indicate a carcinomatous growth. Operation was performed and the patient made a complete recovery, and at this time it was found that the pancreas was large, hard and indurated, being evidently a pancreas surrounded by a lot of blood. The presence of fatty stools and glycosuria should always excite suspicion, and careful observation, both clinical and laboratory, should be made. He

believed the condition to be one purely for surgical relief, and that the plan offering the surest means of relief was drainage through the gall-bladder.

Surgery of the Pancreas.—Dr. Deaver then considered this subject, in which he stated that hemorrhage should be controlled by tying the tissues of the pancreas, and the bleeding stopped by deep sutures. The great danger in wounds of the pancreas is the escape of the secretion into the peritoneal cavity, preventing the formation of adhesions and rendering secondary hemorrhage probable. Great care should be taken to keep the secretion from the injured gland from the abdominal cavity during the operation and drainage should be established.

Acute Pancreatitis.—This case was also reported by Dr. Deaver. The patient, an alcoholic subject, was operated upon immediately upon his admission to the hospital, prior to which time he had been sick two weeks. The tumor was quite evident on physical examination, and the X-ray demonstrated a shadow that did not move with the diaphragm. Operation revealed no effusion into the lesser peritoneal cavity, but extensive fat necrosis of the great omentum; the pancreas was very hard, but did not feel as though it contained fluid; the gall-bladder, which was filled with stones, was opened and evacuated and drainage established, the patient dying in about forty-eight hours. The operation should be done at the earliest possible moment, the cavity being walled off to prevent the infection of surrounding parts by the escaping fluid. In chronic peritonitis, drainage should be established through the gall-bladder and allowed to continue for from four to six weeks. In gall-stone operations it was recommended that every duct be explored, which it is possible to fathom, in order to avoid leaving any stones.

Dr. Mueller referred to the importance of establishing drainage in the chronic cases, and states that he believed the chief cause of the condition was obstruction of the islands of Langerhans. In the autopsy of the case reported by Dr. Deaver (which he had performed), there was an excess of abdominal fat, the pancreas being in a state of fat necrosis and very hard. The pancreas was in an acute suppurative condition, only part of the field of operation being the seat of hemorrhage. The antrum of Vater contained a few red blood cells; there was marked congestion of the lungs and a little peritonitis in the two upper quadrants of the abdomen.

Dr. Samuel Wolfe remarked upon the meagerness of the literature upon this subject and recommended that all cases presenting symptoms of intestinal indigestion be carefully studied, particularly those in which glycosuria and fatty stools were present. He believed that there was a close connection between the lesions of the Island of Langerhans and glycosuria.

Dr. McGlenn believed that the condition was eminently one for surgical treatment, and recommended exploratory operation in suspicious cases, believing that such procedure with drainage of the gall-bladder would cure many that otherwise terminated fatally.

Dr. Howard S. Anders reported a case occurring in an alcoholic, who reported that he had been a hard drinker and had frequently suffered from attacks of indigestion. Examination showed a small, rapid pulse, excessive perspiration, considerable epigastric pain, and decided tenderness a little to the left of the middle line, but no evidence of tumor or obstruction. Death ensued in a few hours and autopsy revealed chronic infiltration of the pancreas. He also referred to a case which had been under his observation, suffering from severe symptoms of indigestion in the epigastrium,

without jaundice, but with a tender spot about the size of a silver dollar a little to the left of the median line, which he is inclined to believe is a case of chronic pancreatitis.

Dr. William Egbert Robertson referred to the accessory pancreas which also contains the Islands of Langerhans, and which he believes are sufficient to prevent the occurrence of glycosuria in large amount. He felt that many of the cases of so-called nervous diabetes could be traced to gall-stones. He also directed attention to the syphilitic variety of pancreatitis.

Dr. Deaver, in closing, emphasized the importance of prompt surgical interference in these cases.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, held January 5, 1904.

The President, Pearce Bailey, M.D., in the Chair.

Ptosis Relieved by Operation.—Dr. B. Sachs presented a young man who had been under his observation for a number of years. He had been apparently well until about ten years ago, when he had an apoplectic seizure, which resulted in double ptosis and palsy of all of the ocular muscles. There was some recovery, but at the present time there was almost complete paralysis of both recti externi, and the up and down motions were still considerably restricted. The rectus externus of the left side had recovered most. The lesion was evidently in the vicinity of the aqueduct of Sylvius, involving not only the third nerve, but the sixth and fourth nerves. For many years this man had had a very persistent tachycardia, and it was assumed that he had had a chronic endocarditis, and that an embolus had passed into the basilar artery. Quite recently another possibility had arisen, *i.e.*, Dr. A. Wiener had found what he considered to be a specific lesion of the fundus. Possibly, therefore, the original condition was a thrombosis resulting in considerable softening. The speaker thought that after a certain length of time, when the ordinary therapeutic procedures had failed to bring about a favorable result, it was proper to resort to surgical means for relieving the ptosis. Dr. Alfred Wiener, supplementing Dr. Sachs's report, said that before the operation, which he had done, the left eyelid hung down to the full extent. The operation done was that known as the Hess operation. An incision was made along the brow, the skin was dissected away and three deep sutures were inserted so as to practically attach the lid to the frontalis muscle. There had been no sacrifice of tissue, and the natural folds of the lid had been preserved. There were a number of pigment spots on the periphery of the retina, a condition often found in young children suffering from hereditary syphilis. It was extremely probable, therefore, that this man was suffering from hereditary syphilis.

Dr. W. M. Leszynsky said that if the man had a ptosis and a paralysis of the third nerve, and the operation were done, and there was diplopia, the resulting condition would be worse than before the operation.

Dr. Sachs said that he had intended to emphasize the point that if there were a diplopia, other ocular muscles should be cut hereafter and a proper equilibrium of the muscles restored. He had had this done in a number of stubborn syphilitic cases, at the suggestion of an ophthalmologist, and the results had been very satisfactory. He would, therefore, recommend the operation not only in ptosis, but in any ocular palsy of long standing.

Postdiphtheritic Hemiplegia, Probably of Neural Origin.—Dr. Joseph Collins presented a boy of nine

years with paralysis and contracture of the left hand and foot. He had first seen the patient at the request of a surgeon, who suspected a tumor of the cortical motor area. The history was: Two and a half years ago the child had a severe attack of diphtheria, for which antitoxin was administered on the fourth day. A week later the child was very weak, and his hands, feet and face were swollen. About three weeks after the onset of the disease he began to walk, and then it was noticed that the left foot dragged. A day or two later the left hand was observed to be weak. A week or so after that the left angle of the mouth was seen to be drawn up. Oftentimes on attempting to swallow fluids, they regurgitated through the nose. The mother did not recall the boy's having had choking spells on swallowing. Between two and three months after the onset of the paralysis the hand and forearm began to flex and the hand to abduct, so that the elbow stood out from the body further than the shoulder. The hand became tightly clutched and gradually drew up until it was held behind the head. This condition lasted about a year. During this time the endeavor was made to overcome this position of the hand by making him carry a weight in it and by using a Whitely exerciser. About eighteen months after the onset of the paralysis the face became straight, but the condition of the foot remained such that when he attempted to put on a shoe he had to wait until the toes became extended, and if the shoe were not slipped on immediately at that moment he would have to wait half an hour before the flexor contraction or spasm would again relax. He never complained of pain. He attended school during this time, and was always bright in his studies. On admission to the Hospital for Ruptured and Crippled on October 23, 1902, he walked with a limp on the left side, the foot being held in position of marked equinus and slight varus; the left hand was held rigid, with the fingers extended, and the posterior muscles of the leg were in rigid contraction. The toes were flexed. The equinus could be overcome by force. There was slight atrophy of the muscles of the leg, but no paralysis. The left hand was in overextension, but there was no barrier to flexion. On October 28, the astragaloscaphoid articulation was exposed, and a wedge of bone and cartilage was taken from the adjacent surfaces. The flexor longus hallucis was exposed and cut, the proximal end was drawn down and passed through the scaphoid and sutured to itself and adjacent periosteum. The anterior tibial was cut and shortened, and a tenotomy of the tendo Achillis was made. The foot was put up in valgus position in plaster-of-Paris. On November 15, 1902, the hand was put up in plaster in a flexed position. On December 13, 1902, when the plaster was removed from the hand, there was marked flexion with slight flexion of the fingers. On January 21, 1903, it was noted that the hand was in extreme flexion. At present, the boy was apparently healthy and well, except for the deformity of his left extremities. His ability to walk, run and jump was limited only by the flexed position of the foot. He stood on either foot equally well. There was no paralysis of the muscles of the hip. The fingers, hand, forearm and arm were in a state of flexion, and the fingers and hand inclined to extreme flexion. This contracture could be overcome by the examiner. The knee-jerks were present on both sides and equal. There was no tenderness on pressure over the nerves, nor were there any sensory disturbances. There was no atrophy. There was partial reaction of degeneration in the muscles and nerves of the extensors of the forearm and foot, and of the peroneal muscles. There was none of the stigmata of hysteria, unless the contracture might be considered such.

The case was diagnosed as one of postdiphtheritic neuritis resulting in contracture and faulty attitude simulating hemiplegia. That there might be a hysterical element in it the speaker did not deny.

Dr. Joseph Fraenkel called attention to the curious and irregular behavior of the symptoms, and the absence of organic phenomena. The change in electrical reaction might be explained by the clonic state of the muscles. He was inclined to believe that this was a functional disorder.

Dr. Leszynsky said he had carefully examined this boy previously. According to the history that he had obtained, this peculiar attitude took place very rapidly. He had been impressed with the fact that, on entering the hospital, there was complete extension of the wrist and hand, and that after the hand had been placed in forcible flexion it had remained in that attitude, whereas formerly it had been in extension. He could find no evidence of involvement of the motor tract. He was inclined to look upon the case as of functional origin. According to the history, the extension took place quite early.

Dr. Sachs said that from a very large experience that he had had with infantile cerebral palsy he would not hesitate at all to say that this was a case of that kind. He pointed out that infantile cerebral palsy did occur after diphtheria. The boy had a hemiplegia which was entirely typical, and there were contractures just as in other cases of hemiplegia. There were athetoid movements of a most pronounced character. If, with the eyes closed, the boy was asked to grasp one's hand firmly with the well hand, the affected hand would at once go into the athetoid position. He could not recall having ever seen this condition in hysteria or neuritis. The leg had recovered very much more than the arm. He would not deny the possibility also of a neuritis, but the infantile palsy was a primary condition. He could not believe that any neuritis would give rise to the condition found in the leg. He would like to know if any one present had ever seen athetoid movements with peripheral neuritis. There was probably a postdiphtheritic encephalitis as the original cause.

Dr. C. L. Dana said he was very glad indeed to hear this positive opinion expressed because he had arrived at the same conclusion from a rather hasty examination of the child. To him a condition very characteristic of unilateral hemiplegia was present in the face.

Dr. Pearce Bailey said that the history of the case did not point very distinctly to a postdiphtheritic paresis, and such a distinctly hemiplegic character would be unusual for a neuritis. The weight of evidence seemed to point to a postdiphtheritic cerebral hemiplegia.

Dr. Collins said he did not know of any hemiplegia of organic origin that entirely spared the upper part of one extremity. There was some involvement of the face and an inability to wink with the left eye, but a large number of people were unable to wink with one or the other eye who had never had hemiplegia. The fact that one hand underwent extension while the other clutched did not seem to him to have any significance, because he had frequently tried this in persons who had no hemiplegia.

Two Cases of Congenital Cyst of the Fourth Ventricle Associated with Brain Tumor.—Dr. J. Ramsay Hunt reported these cases, presenting photographs and specimens. He said that both cases were examples of brain tumor in young subjects, occupying the left optic thalamus and the right crus cerebri, respectively. In addition, the fourth ventricle in both cases contained a large cyst, primarily attached to its floor, penetrating into the substance of the pons coursing through its

structures and terminating in immediate structural relation with the tumor. The clinical course of the disease in both cases was typical of brain tumor, and permitted the correct localization of the growth. Antedating the symptoms of brain tumor no certain history of central symptoms or mental defect was obtainable. In the second case, the patient was said to have been subject to headaches with attacks of vertigo and nausea. The first patient was a boy of seven, who developed general symptoms of brain tumor with right hemiparesis and right hemiataxia. There was paralysis of the right side of the face with paresis of the left external rectus and with nystagmus. Hearing was impaired on the right. The second patient was a boy of seventeen, who, six weeks after a fall on the occiput developed the general and focal symptoms of brain tumor in the right crus cerebri. Weber's syndrome was present. On exposing the fourth ventricle, at the autopsy, a large cyst was found there in both cases, firmly attached to the floor of this ventricle. By serial sections he had demonstrated that in both cases the cyst dipped down in the pons, coursed forward and was in immediate structural relation with the tumor in both cases. There was nothing in the walls of these cysts to suggest a parasitic origin, while there was much to point to a congenital origin. The frequency of glioma in this locality was well known. The coexistence of a tumor formation still further supported the view already expressed. These cases were unique in his pathological experience, and he had been unable to find their counterpart in the literature.

Case of Primary Sclerosis of the Posterior Columns Followed by a Disseminated Softening of the Other White Columns.—Dr. Joseph Collins presented this report. The clinical picture, he said, was so typical that the diagnosis was made during life. The patient was a house-painter, forty-two years of age, whose only previous illness had been severe attacks of colic. There was no history of syphilis, gonorrhea, or the excessive use of alcohol. In 1900 he began to complain of trembling and stiffness of the hands, associated with intense paresthesia. Later on there was pain in the back. During the following year his principal complaints were manual paresthesia and general weakness. There was no desire for sexual intercourse. All this time he was under treatment for chronic lead poisoning. In January, 1902, he rapidly became paraplegic, and since then had been bedridden. He was admitted to the City Hospital in March, 1902, and when first examined by Dr. Collins, on April 11, the man appeared to be suffering from Bright's disease. He could move the lower extremities slowly; there were kneejerks present on both sides. The Babinski reflex could also be elicited on both sides. Tactile sensibility was impaired over the lower extremities. Thermal sensibility was preserved, but was slow below the knee. Pain sensibility was preserved. Deep sensibility was lost. There was prompt response to the faradic current. The pupils were equal and responsive. Bedsores were developing over the sacrum. The blood examination showed a predominance of small mononuclear cells and there was only 65 per cent. of hemoglobin. On April 27 it was noted that there was complete flaccid paraplegia; the left lower extremity was edematous; there was incontinence of urine and feces. He refused to take food up to the time of his death. The autopsy was made twenty-four hours after death. The brain and spinal cord was prepared in the usual way, and showed two distinct sets of lesions, sclerosis and softening. The areas of softening appeared to be very recent. In general, they involved the columns of Burdock, the posterolateral portions of the crossed

pyramidal tract and the cerebellar tract. The oblongata, pons and motor cortex were normal. The sclerosis appeared to be a primary one following pretty closely the system of fibers in Goll's tract. No thrombi or pathological changes of the blood vessels were found, and the blood examinations showed this fluid to be fairly normal. The genesis of the softening was still obscure.

Dr. C. L. Dana said that this description followed closely those of cases of combined degeneration of the spinal cord with terminal softening. He did not quite understand whether the reporter put his case in this group, yet, to his mind, the case corresponded very closely with typical cases of that kind, a considerable number of which it had been his fortune to observe. Sometimes these cases were associated with a pernicious anemia; sometimes there was a severe primary anemia, while at other times there was no anemia at all. It was unfortunate that neurologists had not as yet agreed upon a name for this affection. The most common name was combined degeneration of the spinal cord associated with toxic states. The pathological conditions reported in this paper were very similar to those already reported. It was only in the minority of cases that there were areas of terminal softening. He was not prepared to admit that there were two distinct processes going on in the spinal cord. The disease began slowly, affecting by preference spots in the posterior columns, and subsequently the lateral columns. If the patient's condition were bad at this time, an acute process developed, but probably essentially of the same nature. The etiology of the toxic condition was as yet unfortunately involved in obscurity.

Dr. Collins said that his case was reported as one of primary sclerosis of the columns of Goll, with secondary softening in the other white columns, the paper being entitled, "A Study of Subacute Sclerosis of the Spinal Cord of Toxic Origin." His case differed materially from those reported by Drs. Dana and Putnam in that the sclerosis was sharply and completely limited to the columns of Goll. In the other cases the sclerosis predominated in the posterior columns and in the crossed pyramidal tract, and this accorded in the main with the clinical history. The fact that his patient had suffered severely from lead poisoning and had subsequently developed a cachexia seemed to throw a little light on the etiology.

Lymphocytosis of the Cerebrospinal Fluid.—Dr. Joseph Fraenkel read a paper on this topic. He said that he had endeavored to study this subject in 47 cases, but in 14 of these the tapplings had failed to give any cerebrospinal fluid. There were 7 cases of tabes, all of long duration, and all of these cases showed marked increase of lymphocytosis. Six out of the seven cases of multiple sclerosis showed lymphocytosis. The tapping was done upon the patient in the sitting posture, preferably between the third and fourth lumbar vertebra, or at the level of the iliac crests. From 5 to 8 c.c. of the fluid were collected for each examination, and then centrifuged. The tapplings were made under chloride of ethyl spray. In some of the cases headache and nausea followed lumbar puncture, but they were usually overcome by saline injections.

Dr. Sachs said that in the two cases in which lumbar puncture had been tried by him in order to distinguish between pseudotabes and tabes, the examination proved entirely negative and of no diagnostic value. Hitherto the reports on this subject had been discouraging because of their contradictions. Lumbar puncture should never be attempted whenever there was a possibility of the existence of a cerebellar neoplasm, as several instances of sudden death following this procedure in such cases had been reported.

Dr. Dana said he had made lumbar puncture now in 26 cases, 21 of which were successful. About 12 of these cases were cases of paresis in which it was desired to receive some diagnostic aid. In two the fluid was clear; in others there was a lymphocytosis. He had found the procedure helpful in diagnosing certain acute cases coming into the insane pavilion. The procedure was easy after a little practice, and could be done almost painlessly by using thirty minims of a half-per-cent. solution of cocaine injected ten minutes before the tapping. The procedure had proved helpful in one or two cases of spinal trouble. He believed it was not only of value in diagnosis, but that it would prove useful in time in therapeutics. Lumbar puncture almost always caused headache or vertigo for a day or two, sometimes for a week, and often it was very distressing. He believed this could be avoided by removing only 4 c.c. of the fluid, a quantity sufficient for diagnostic purposes.

Delirium Grave; a Critical Study, with Report of a Case with Autopsy.—Dr. W. B. Pritchard presented this paper. He said that all authors agreed that the disease was very uncommon, and most writers agreed that it was chiefly found among women. The immediate exciting causes were apparently numerous and various. Typhus and typhoid fever, or other prolonged infections, might be followed by delirium grave. The clinical picture was quite distinct and constant. Following a sudden or prolonged strain, the patient developed a maniacal condition with violence and incoherence. Hallucinations and delusions appeared, usually related to the visual sense, and the temperature was usually raised from one to five degrees above the normal. Again and again transient remissions might occur, but they became less and less complete and less frequent. Emaciation was sometimes rapid, followed by exhaustion, coma and death in a short time. At least two fundamentally different diseased conditions had been confused—one obviously organic, inflammatory and due to toxins or trauma; the other giving chiefly negative pathological findings. He would suggest the use of the term delirium grave for this group, and the application of the terms "pseudo-delirium grave" or "acute febrile delirium" to the first group. Many cases of meningitis and of toxic encephalitis had been reported as delirium grave. In ordinary acute mania there was not the same tendency to rapid and fatal collapse, and the hallucinations and delusions were more systematized. The disease was of extremely grave prognosis, nearly all cases terminating fatally. Death usually occurred from exhaustion; those who escaped death passed into a condition of dementia. The case reported occurred in a woman of forty-three years, who had been subject to many and severe nervous strains. On December 12 she suddenly developed the most violent mania. The delirium and mania were only temporarily controlled by drugs, and she died on the sixteenth day. A noticeable peculiarity was an almost continuous expectoration. Incontinence of urine and feces developed a few days before death. The autopsy was made four hours after death by Drs. McPhee and Larkin. Sections were made from all the regions of the brain. No changes in the blood vessels were noted; the chief changes were eccentricity of the nuclei with ragged cell outlines and loss of chromatic bodies. In the cerebellum Perkins' cells were mere shadows. These lesions had been found in a great many other conditions.

Dr. Adolf Myer was of the opinion that acute grave delirium had, among alienists, much the same position that Landry's paralysis had among certain affections of the spinal cord. The delirium under discussion was

uniform and unmistakable in that it could not be analyzed, owing to the excited condition of the patient. He had not yet met with a single case in which there had been reason to doubt the diagnosis of delirium grave. In some of these meningitis had only been discovered by microscopical examination; in others, pneumonia or some other condition had spoiled the purity of the clinical picture. He thought the majority of alienists took a somewhat different position from Dr. Spitzka on this subject, believing it to be a peracute phase, but not a clinical entity.

Dr. Pritchard said that the object of his paper was to endeavor, if possible, to clear up the subject by separating the cases of meningitis, pneumonia and the like from true delirium grave, and emphasizing this differentiation by reporting a striking case coming under his own observation. He was of the opinion that the vast majority of alienists of to-day did recognize delirium grave as a clinical entity, although of obscure etiology.

SOCIETY OF THE ALUMNI OF CITY HOSPITAL.

One Hundred and Eleventh Regular Meeting, held January 13, 1904.

The President, Alexander Lyle, M.D., in the Chair.

Atrophy Testicle.—Dr. Walter S. Reynolds showed the case of a young man, aged twenty-five years, who presented the unusual complications of an atrophy of the testicle due to trauma received in boyhood on the one side and chronic epididymitis and orchitis on the other. The individual had led a life of a most promiscuous character, having had no less than five distinct attacks of gonorrhea in the past four years. These had all been treated by the usual methods of injection and internal medication. Nevertheless in the last two attacks a very violent epididymitis and prostatitis had developed. The special point of interest in this case lay in the question of the ability of the individual to procreate. It did not seem possible that he could have retained this power in view of the very extensive productive inflammations in and about the epididymis on the right side, while the left testicle had evidently been entirely destroyed by trauma years before.

Dr. Ralph Waldo said that the prevalence of cases similar to the one presented is the indirect cause of many married women visiting the gynecologist. He believes that fully 10 per cent. of all cases of sterility are due to the man. Some years ago he had a patient who contracted tuberculosis of one testicle. After its removal, his wife had a baby. Shortly after this, the other testicle was removed. Five or six years later, although there were no more children, their sexual relations were unchanged.

Dr. J. W. Draper Maury said that a series of experiments had recently been performed on dogs in which the severed vas deferens had been inserted into the body of the testicle, positive proof being afforded later that the spermatozoa were gaining access to the urethra in a normal way. The authors of these experiments, emboldened by their success on dogs, had successfully operated in the case of one man for the cure of sterility which had been proven present, not alone by absence of children, but by microscopical demonstration as well.

Supposed Ureteral Stone.—Dr. Ralph Waldo reported the history of this case. The classic symptoms of calculus were present, but when the abdomen was opened, the following conditions presented themselves: The kidney was bound down at its lower pole to the retroperitoneum. The upper pole had been forced in a rotary manner upward, so that the whole organ had

undergone axial transposition. The defect was remedied by traction and fixation of the organs in normal position. The symptoms, which had been very severe, vanished, and the man made an uninterrupted recovery.

Obscure Rectal Ulcer.—Dr. Carter S. Cole gave the history of an obscure rectal ulcer, the management of which had proven difficult and unsatisfactory. The patient was a woman who had been operated upon in Europe for hemorrhoids. There is no precise information as to what was done, but at the present time, $1\frac{1}{2}$ inches from the surface there is a fine but strong annular contraction. About half an inch from the surface on the wall of the rectum is a small ulcer. This ulcer was not recognized by an eminent stomach specialist and a gynecologist, each of whom had had the patient under observation for many months. Not through any fault of theirs, but because of the diversity of the symptoms produced by the lesion, did they fail. The ulcer is positively non-syphilitic. It has been cut out and the site covered with mucous membrane, but it has so far resisted all efforts to heal. It is non-malignant. Nutritive treatment applied directly to the ulcer has been partially successful. He asked for information.

Cerebral Hemorrhage.—Dr. William L. Stowell recited the history of an old woman who presented atypical symptoms of cerebral hemorrhage. She lay in a partial stupor, and at first presented sufficiently marked signs to warrant his diagnosing hemorrhage and giving an unfavorable prognosis. To his surprise, however, in the course of two days she had recovered from many of the symptoms so that his diagnosis seemed to be at fault. One interesting symptom was her inability or her unwillingness to swallow. It is difficult to ascribe this to hysteria in a sensible woman of eighty-eight years. Two days after this effort at recovery, she died.

Dr. Carter S. Cole believed that he had not infrequently seen similar cases and had always ascribed them to basilar endarteritis.

Dr. J. F. Terriberry took exception to Dr. Cole's statement that the condition was one of basilar endarteritis. He said that the more protean and exotic the symptoms, the higher in the cerebral arteries were the atheromatous changes. The difficulty in swallowing was probably mental. Miliary aneurisms are not infrequent in the striate artery. Any profound nuclear lesions give more permanent symptoms than those described by Dr. Stowell. In general, restoration of function means a lesion in the high and unsupported vessels of the brain. Charcot has described the condition. Some of the symptoms presented by these cases are purely mechanical, some are psychical.

Infantile Bronchitis.—Dr. E. Mather Sill presented this paper. He said that out of 1,000 cases of various diseases coming directly under his care at the dispensary in the last two months, 293, or nearly one-third, suffered from different forms of bronchitis. The greater part of this interesting paper was devoted to the methods of treatment employed by the author. He looks very favorably upon the inhalation of oxygen in cases of profound depression arising from involvement of the finer bronchial tubes. Dry cupping over the chest will often relieve the intense congestion of the subjacent parts and will limit the amount of secretion. Spirits of camphor in five-drop doses he has found to be a most excellent remedy. If the child is in *extremis*, the lungs having practically filled with their own secretions, occasionally an inversion of the little patient with the slapping over the buttock and back of the chest will give relief. The general practitioner cannot be too fully warned as to the great danger of routine treatment of these bronchitis cases, each one of which is deserving

of very special study and individual treatment. In general, cough medicines designed to allay coughing are contraindicated in children unless their action be very carefully watched. Similarly, all expectorants, particularly the ammonium salts are to be avoided, many a child having been killed by their use. The treatment necessitates first an accurate diagnosis, which cannot be made without frequent examinations of the chest, and second, a recognition of the stage of the disease which is under the physician's care.

Dr. William L. Stowell, in opening the discussion, said that the subject was so old that but little could be added to it. Nevertheless it seemed to him that one point, at least, was of very great importance in determining the treatment of these cases, viz., the condition of nutrition of the patient. The well-fed child needs care and no medicine, the underfed needs support and stimulation of the most accurate kind. This eliminates the abortive treatment by aconite in the founding. It is useful to remember that all cases bear oily preparations well, a mixture of castor oil, acacia and paregoric forming one of the best relaxing mixtures. The kettle is an invaluable aid in the case of robust children, unmedicated steam being equally good as medicated; fifteen minutes to the hour being none too much in most cases. Every child in the dry stage of bronchitis needs an abundance of moisture to promote ciliary action. This the steam helps, but it is equally important that there should be a copious supply of water from within. To this end the child must drink abundantly. He condemned the cotton batting jacket as useless and dirty, sheet lamb's wool being preferable. In children of resisting skins, where camphorated oil will not produce a good reaction, the oil of camphor can sometimes be used to advantage.

Dr. A. Rupp said that Dr. Sill had not given the attention to calomel in these cases which he thought it deserved. Small doses not only offset the constipation produced by cough mixture, but relieve the laryngeal irritation.

Dr. J. F. Connors urged very strongly the use of ipecac, calomel and castor oil, with a "one to four" mustard plaster, t.i.d. He would cut down the food to one-half or one-third. He rarely uses stimulants and prefers strophanthus when they are necessary.

Dr. A. A. Moore said that prevention should play an important part in the discussion of any paper on bronchitis. He advised that the child should be taken out of doors every day. Along the same lines, the late care of the child, particularly in poorly fed infants, is of ultra importance, and paramount among all drugs or foodstuffs as a preventive of pneumonia, is cod-liver oil.

Dr. Sill, in closing the discussion, denounced the use of proprietary preparations, admitted the importance of calomel and stated that he advised the use of "one to six" mustard plaster rather than "one to four" in tenement house children, because in these neglected cases much harm might be done by the stronger preparation.

Smokers' Ulcer of the Hard Palate.—Dr. Adolph Rupp presented this paper. He said that pathological conditions of the palate, both soft and hard, were not only not numerous, but extremely rare. The lesions which he was reporting had been entirely omitted from the literature on the subject. He presented the histories of the two following cases: *Case I.*—A clergyman, fifty years old, healthy and well-developed in all respects, but an inveterate pipe smoker, developed an ulcer on the roof of the mouth which his physician told him was an epithelioma. It was treated with the X-ray with indifferent success. The lesion was about a half an inch long and a little less in width opposite the second molar tooth on the right side. The border

was vascular and bled freely when touched. The floor was hard. When punctured it bled. There was occasional slight bleeding from this ulcer following swallowing. There was no pain. The patient stated that he had noticed similar ulcers during the past five or six years after excessive pipe smoking. These had previously healed without trouble. This one, however, refused to respond to treatment despite his having ceased smoking altogether. Dr. Delevan saw the ulcer and agreed with Dr. Rupp that it was non-malignant. *Case II.*—A healthy bricklayer, fifty-three years old, smoked a short clay pipe all day. The ulcer was on the roof of the hard palate above the right canine tooth. It was half the size of that in Case I, was quite circular, but the surrounding parts were less congested. The position of the ulcer seemed to have been determined by the difference in the length of the individual pipe stems and the weight of the pipe. The author believed it to be a simple chronic tobacco burn in each case. The treatment was hygienic and local. The teeth were put in order and menthol in absolute alcohol was applied every two hours. A cure resulted very promptly in each case.

Dr. Carter S. Cole, in opening the discussion of this paper, said that it was admittedly a unique condition. In the South many men smoke every day of their lives most of the day. In many of these persons, the end of the stem must come in contact with the roof of the mouth. He had heard of many temporary ulcerations in smokers' mouths, but these had always been near the roots of the teeth. One explanation of the rarity of these cases in medical literature may be due to the fact that they are probably recognized by the individual as caused by the pipe and such prompt healing resulting from abstinence, a physician is usually not called upon to treat the case. Certainly these lesions could not have been malignant or they would not have healed.

Dr. G. B. McAuliffe said that ulcers at the juncture of the soft and hard palate were not uncommon. They are obstinate to treat, many of them yielding only to nitric acid. Underlying these ulcerations there must be something besides tobacco. They are usually regarded as late specific manifestations.

Dr. H. Jarecky had never seen ulcers on the hard palate. Syphilis of the region is easily diagnosed. Tobacco smoke is usually considered to be germicidal. It is not easy, therefore, to understand how it should cause ulceration, unless it be by affecting nutritional disturbance.

Dr. Rupp, in closing, said the different brands of tobacco affect the mouth differently. This is particularly true of cigars. Havana cigars are said to produce carcinoma more frequently than others. Each man had used the same brand of tobacco. Syphilis and malignancy were both out of the question in each of his cases.

BOOK REVIEWS.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. Transactions of the Twelfth Annual Meeting, held at St. Joseph, Missouri, December 19 and 20, 1902. American Medical Association Press, Chicago.

THE present volume of transactions of the Western Surgical and Gynecological Association is another evidence of what thoroughly good medical work is being done in every part of this country. Many of the papers in the present volume are thoroughly representative of up-to-date surgery. The article of Dr. C. H. Mayo, of Rochester, Minn., on Evolution in the Treatment of Cancer of the Rectum; that of Dr. H. C. Crowell, of Kansas City, Mo., on Carcinoma Uteri; of Dr.

Byron B. Davis, on Chronic Pancreatitis and Pancreatic Cyst, and that of Alexander Hugh Ferguson, on A Case of End-to-End Anastomosis of the Popliteal Artery for Gunshot Injury, seem especially worthy of mention. The discussions of these important subjects are typical of the progressive, yet conservative, methods of our best Western surgeons.

LATIN GRAMMAR OF PHARMACY AND MEDICINE. By D. H. ROBINSON, Ph.D. Fourth edition. Revised by HANNAH OLIVER, A.M. P. Blakiston's Son & Co., Philadelphia.

FOR those students of pharmacy and medicine who, because of various reasons, have been deprived of an academic course in Latin, this work of Dr. Robinson's will prove particularly helpful. It is short, practical, well sifted and well worked out and there is enough good Latin in it to serve as a foundation never to be forgotten.

A NARRATIVE OF MEDICINE IN AMERICA. By JAMES GREGORY MUMFORD, M.D., Assistant Visiting Surgeon to the Massachusetts General Hospital and Instructor in Surgery in the Harvard Medical School. J. B. Lippincott Company, Philadelphia and London.

THIS charming narrative is difficult to review, for one is so fascinated by the glimpses of the past, and so carried away by the personalities of the men who have made medicine a science in America that one forgets to pause and note, to jot and criticize, and when one starts to quote a passage that is particularly apt, one cannot refrain from taking whole pages.

The object of the author seems not to have been to rescue from oblivion by exhaustive mention, every medical man of note in America, but rather by describing dramatically the times and the scenes in which characteristic men moved, to give a series of mental pictures illustrating the growth of medicine in Colonial days, Revolutionary times, and through the nineteenth century. He stops, however, respectfully on the edge of the present, not caring to assume, we imagine, the delicate responsibility of grouping celebrities that are still living.

It was a genial conception, not to write only of the medical doings of each physician, but to show that part of his life in which he was soldier, philosopher or friend. In these days when every pamphlet of ours must be adorned on the front page with a triangular slab of fine printing, telling every medical society, hospital, clinic and laboratory that we belong to, we grow accustomed to diverting our personnel from our profession, and when we read a friend's obituary we can no more recognize him in it, than we would recognize the neighborliness of one of our own garden flowers, severed from its root, stripped of its foliage and flattened to show every separate petal in an Herbarium.

This book of Dr. Mumford's is no *Hortus Siccus* of the flower of the profession. It is somewhat a philosophical bit of history illustrated by men and events. It shows very clearly and chronologically just when and where and why the Art of Healing dallied by the way, was assailed by rogues, and rescued by heroes, and finally led triumphantly forward and honorably presented as the Science of Medicine.

It bears the same relation to other histories of medicine that John Fish's *Beginnings of New England* does to the text or reference book. It is full of facts, but perspective grouped and invitingly presented. In short, it is the kind of book that a physician would rest himself with when he was tired, but would turn to for a reference or illustration when he felt fresh enough to wax eloquent over his profession.